OCTOBER 15, 2018

TIME

HER LASTING IMPACT

by HALEY SWEETLAND EDWARDS

TIME

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Photograph by David Butow—Redux for TIME

ON THE COVER: *Illustration by John Mavroudis for TIME*

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Conversation

WHAT YOU SAID ABOUT ...

PULLING EQUAL WEIGHT Contributor Irin Carmon's Oct. 8 story on what the U.S. can learn from Sweden's gender-equality policies sparked a Twitter debate about the cover design, which added the words AND WOMEN to the Declaration of Independence's avowal "that all men are created equal." Some felt that such a tweak was redundant, as "all men" can be interpreted to refer to humankind; @Android3D3 wrote that "if we believe" those words should apply to everyone, "then so be it." Others like @RyanJArthur thought it wasn't good enough to rely on interpretation, suggesting that in the case of the Constitution it would help to amend such language to match "the views of today." But David Pat in San Diego noted that changing laws and language can only do so much when there's "not much cultural support" for American dads who want to play an equal role as parents.

'Informative, thought-provoking article.'

CONNIE BURKET, Salina, Kans.

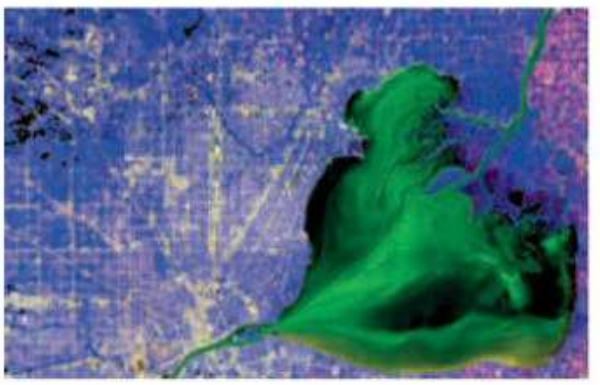
NANCY PELOSI'S PERSISTENCE Molly Ball's Sept. 17 profile of Nancy Pelosi led CNN's Dana Bash and the Washington *Post*'s Karen Tumulty to marvel on Twitter that the Democratic minority leader had never been on the cover before—a reaction echoed in the "FINALLY!" the story got from Cynthia Birmingham of San Francisco. "She should be gratefully acknowledged for all she's done," added Carole Wilmoth of Keene, Texas. But Laure Marino of Charleston, W.V., felt the magazine "got the timing wrong" by running a Pelosi profile as the cover story in the issue that also marked the death of Senator John McCain.

'One of my idols for years because she stands up for her beliefs. What a role model.'

JEAN DENNIS, Golden, Colo.

GENIUS COMPANIES TIME's video team sat down with the executives leading several of the businesses featured in this issue—Bob Iger (the Walt Disney Company), Anne Wojcicki (23andMe), Luis von Ahn (Duolingo) and Pat Brown (Impossible Foods), seen below—to talk about creativity in the workplace. Watch at **time.com/geniuscompanies**

EVERY VOTE COUNTS Though there's no evidence that Russia tampered with voting machines in 2016—its efforts were aimed at people's decisions and faith in democracy—polls show Americans are concerned about the integrity of the Nov. 6 midterm ballot. TIME's D.C. bureau has nine tips to assure your vote counts at **time.com/protect-vote**



CITIES On TIME.com, learn how scientists Karen C. Seto and Meredith Reba use infrared satellite images to document climate change's toll on urban landscapes. Above, Detroit and, in green, a shallower Lake St. Clair. See more of the pictures at **time.com/infrared-cities**

bonus TIME history

Subscribe to TIME's free history newsletter and get **the stories behind the news, plus a curated selection of highlights from our archives.** For more, visit **time.com/email**

SETTING THE RECORD STRAIGHT In the infographic on the history of NASA (Oct. 8), we misstated the year that Voyager 2 reached Neptune. It was 1989.

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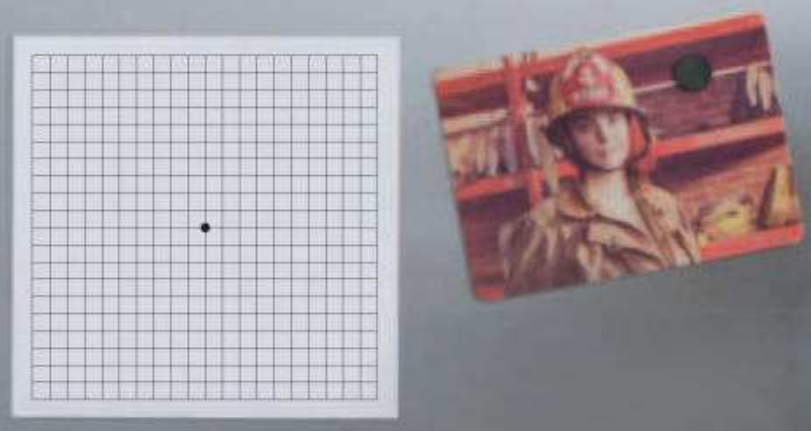
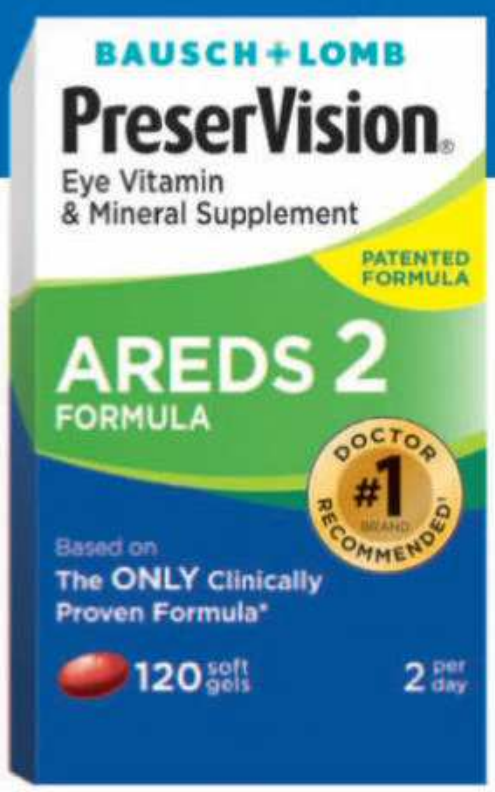
CITIES: LANDSAT OLI/TIRS

“It’s my vision. That’s why I fight.”





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[1] Age-Related Eye Disease Study 2 Research Group. AREDS2 randomized clinical trial. JAMA. 2013;309(19):2005-15. [2] https://nei.nih.gov/areds2

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‘What is *yes*?’

MARIA SHAFER,
accepting a marriage proposal from *Jeopardy!* contestant Michael Pascuzzi in the middle of a recent episode

‘They bullied me backstage. They said, “Don’t go out there with that hat on.”’

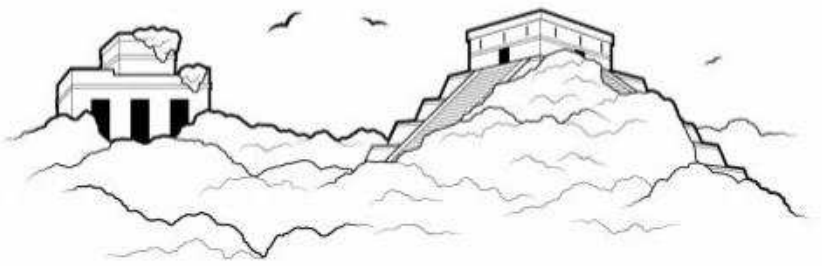
KANYE WEST,
rapper, during his appearance on the season premiere of *Saturday Night Live,* for which he wore a red “Make America Great Again” cap; NBC declined to comment

74

Years between the death of U.S. Army Private First Class Willard “Bud” Jenkins on Sept. 20, 1944, and the repatriation of his remains; DNA testing helped identify the body, which had been buried in the Netherlands as that of an unknown soldier

61,000

Number of structures dating back to the Mayan civilization discovered in northern Guatemala during recent archaeological scans of the region’s forests



‘HE WROTE ME BEAUTIFUL LETTERS. AND THEY’RE GREAT LETTERS. WE FELL IN LOVE.’

DONALD TRUMP,
U.S. President, on developing a working relationship with North Korean dictator Kim Jong Un, at a Sept. 29 rally in West Virginia

‘History will judge her on her response.’

AMAL CLOONEY,
human-rights lawyer, after appealing to Myanmar leader Aung San Suu Kyi to pardon two imprisoned Reuters reporters

‘Today, and every day, we continue to make the choice to triumph over evil.’

BRIAN SANDOVAL,
Nevada governor, at an Oct. 1 ceremony marking one year since a shooting at a Las Vegas country-music festival left 58 people dead

$15

Minimum hourly wage for all U.S. Amazon employees, starting Nov. 1; the change followed criticism of worker conditions at the company

Kinky Boots
Tony-winning Broadway musical to end six-year run in 2019

Hiking boots
Shoe is among 70 new emojis in Apple’s new iPhone update iOS 12.1

ILLUSTRATIONS BY BROWN BIRD DESIGN FOR TIME

SOURCES: ASSOCIATED PRESS; LAS VEGAS REVIEW-JOURNAL; NEW YORK TIMES; REUTERS; SCIENCE

The Brief

MILKING IT
A replacement for NAFTA comes with benefits for American dairy farmers who sell to Canada

INSIDE

THANKS TO LOW VOTER TURNOUT, THE COUNTRY IS STILL "MACEDONIA" FOR NOW

AFTER A U.N. RULING, BOLIVIA WON'T BE TOUCHING AN OCEAN ANYTIME SOON

FRANCE GRIEVES THE PASSING OF AN ICON WITH THE DEATH OF CHARLES AZNAVOUR

PHOTOGRAPH BY DAVID JOLES

TRADE

A NAFTA deal brings a return to status quo

By Justin Worland

ON THE CAMPAIGN TRAIL, DONALD TRUMP'S take on free-trade deals was clear. He promised to withdraw the U.S. from the Trans-Pacific Partnership (TPP) and reserved special ire for the North American Free Trade Agreement (NAFTA), which he called "the worst trade deal ever."

And sure enough, he withdrew the U.S. from the TPP within days of taking office last year, and on Sept. 30 his Administration announced that it had reached a deal with Canada and Mexico to replace NAFTA, which has governed trade between the U.S., Canada and Mexico since 1994, with a new pact called the U.S.-Mexico-Canada Agreement, or USMCA.

"I promised to renegotiate NAFTA," Trump said in the White House Rose Garden the day after the announcement. "Today, we have kept that promise."

But despite Trump's rhetoric, the new agreement keeps the framework of NAFTA largely intact, maintaining the status quo of free trade between the three countries. In fact, some of the changes actually look a lot like elements from the TPP, which was negotiated under President Barack Obama.

The news that most North American trade can continue smoothly is a huge relief to a slew of industries and interest groups that were rattled by Trump's repeated attacks on NAFTA—as well as to governments in Mexico City and Ottawa, along with Republicans and Democrats on Capitol Hill who support free trade.

"Free and fair trade in North America … is in a much more stable place than it was yesterday," said Canadian Prime Minister Justin Trudeau at a press conference. "NAFTA will be preserved, updated, modernized and stabilized."

By resolving tensions over NAFTA, Trump is putting out a fire that he initiated. After his remarks on the campaign trail, fear lingered that he might leave the pact. As recently as Sept. 26, the Trump Administration signaled that it might sign a bilateral trade deal with Mexico that would leave Canada out of the equation. "Canada has a long way to go," Trump said at a press conference. "We're not getting along at all with their negotiators."

At stake was more than $1 trillion in annual trade that occurs among the three countries. Manufacturers rely on the cross-border supply chains that have grown over the past two decades. Farmers have developed export markets in Canada and Mexico. And consumers have benefited from reduced prices.

And so interest groups and diplomats worked behind the scenes in a last-minute blitz to secure a trilateral deal ahead of an end-of-September deadline to reveal text. Ultimately, many say, a three-party deal is a win no matter the details."The fact that we have an agreement at all is a plus," says Richard Kauzlarich, a former U.S. ambassador and a professor at George Mason University. But he adds, "I don't see any revolutionary change."

YOU WON'T HEAR that from Trump, however. In announcing the new agreement, the President called the USMCA a "much different deal" from NAFTA and continued to insist that the old agreement had killed millions of jobs. (Economists say it's not so simple.)

And while the USMCA keeps the heart of NAFTA in place, it's not *exactly* the same. Automakers looking to avoid duties on vehicle imports will need to use a higher percentage of North American auto parts and pay some workers more, a provision designed to make U.S. labor more competitive. American dairy farmers will get additional access to the Canadian market. And the deal will need to be reviewed and renewed before a 16-year period ends, a major concession to Trump's general skepticism toward such deals.

Broadly, the deal was a political win for Trump, adding a concrete pact to a trade policy that has generated more uncertainty than clear economic gain. And while the USMCA is limited to three countries, the Administration quickly sought to portray it as a step toward tackling trade tensions with China. The U.S. has imposed tariffs on more than $250 billion in Chinese goods, the effects of which have already roiled farmers, manufacturers and other businesses. U.S. Trade Representative Robert Lighthizer suggested that the USMCA deal could be a "template" for future trade agreements, and Larry Kudlow, Trump's chief economic adviser, said it "sends a signal to China" about trade principles in North America.

Yet trade experts remain skeptical that the agreement means the U.S. is any closer to resolving its issues with China. The existence of 25-year-old NAFTA text that largely satisfied most parties gave negotiators a solid starting place, but no such common ground exists for the U.S. relationship with China. And while democratic pressures in all three North American countries kept them working for a speedy resolution, leaders in China are girding for a long and drawn-out conflict that might include some short-term economic losses they're willing to take.

No matter what his advisers may say to calm concerns, Trump at least seems prepared for the long haul. "Hopefully, we can make a great deal with China," Trump said. "And if we're unable to make a fair deal, then we'll use tariffs." □

'Free and fair trade in North America … is in a much more stable place than it was yesterday.'

JUSTIN TRUDEAU, Prime Minister of Canada

PREVIOUS PAGE: MINNEAPOLIS STARTRIBUNE/TNS/SIPA USA; THESE PAGES: TRUDEAU: GETTY IMAGES; MACEDONIA: VALDRIN XHEMAJ—EPA-EFE/SHUTTERSTOCK

Macedonian nationalists in Skopje celebrate low turnout in the referendum on Sept. 30

THE BULLETIN

An inconclusive referendum has Macedonia stuck between Russia and the West

A SEPT. 30 REFERENDUM TO CHANGE THE name of the nation that calls itself the Republic of Macedonia, to the Republic of *North* Macedonia, failed to deliver a binding result after only 37% of the electorate voted, well below the necessary 50% threshold. The result has stalled an attempt to end a decades-long dispute with neighboring Greece and pave the way to NATO and E.U. membership—a boon to Russia, which opposes the expansion of both bodies.

NAME GAME The name Macedonia dates back to ancient times, and both countries trace their heritage back to Alexander the Great. But northern border regions of Greece have "Macedonia" in their names, so Athens claims the other nation's use of the term gives legitimacy to unlawful claims to Greek land. (The U.N. calls it "the former Yugoslav Republic of Macedonia.") The dispute has led Greece to repeatedly block Macedonian attempts to join NATO and the E.U., frustrating Western governments who want to see those alliances strengthened in the face of Russian aggression.

DIVIDING LINES In June, Macedonia's Prime Minister Zoran Zaev agreed to a compromise: an official rebrand to "North Macedonia." But Macedonian nationalists boycotted the September referendum, saying a name change would be "historical suicide." They allegedly had help: U.S. Secretary of Defense James Mattis warned that Russia had funded "influence campaigns" to sabotage the vote. Other officials said Russian groups spread disinformation and stoked ethnic tensions before the vote.

GROWING REACH Russia's alleged actions in Macedonia are unconfirmed but would fit a pattern of disruptive activity. In 2017, two Russian citizens were arrested in Montenegro in connection with a failed coup attempt to prevent the country from joining NATO; Russia denied involvement. And Moscow has stirred nationalism across the Balkans, hoping to rekindle its influence in a region it once dominated. "There is no alternative to E.U. and NATO membership," Zaev said on Sept. 30. Not if Vladimir Putin gets his way. —BILLY PERRIGO

NEWS TICKER

Trump taxes return to spotlight

Starting from childhood, President Donald Trump reportedly **helped his parents avoid taxes and participated in possible fraud** in the process of receiving at least $413 million in today's dollars from them, according to a New York *Times* investigation published Oct. 2. Trump's lawyer denied the claims.

Colombia tightens drug laws

Colombia's new President, Iván Duque, signed a decree on Oct. 1 **allowing police to confiscate even small amounts of drugs,** citing an "alarming increase" in substance abuse. Colombia decriminalized the possession of small amounts of marijuana and cocaine in 1994.

Chicago schools lose grants over abuse claims

The Department of Education is withholding $4 million in grants intended for Chicago public schools, alleging in a Sept. 27 letter to the district that schools have failed to show they're **properly addressing complaints of sexual abuse.** The schools plan to appeal the decision.

NEWS TICKER

Melania Trump goes solo to Africa

In her first major foreign excursion without the President, U.S. First Lady Melania Trump **landed in Ghana on Oct. 2 for a five-day trip focused on health and education.** Her schedule includes stops in Malawi, Kenya and Egypt.

Plea in wildfire sparked at gender-reveal party

U.S. border-patrol agent Dennis Dickey pleaded guilty to a misdemeanor violation of U.S. Forest Service regulations on Sept. 28, acknowledging that he **started a 2017 wildfire that caused $8 million in damages** by shooting at a target that was rigged to reveal the sex of his soon-to-be-born baby.

Chinese, U.S. ships narrowly avoid clash

China accused the U.S. of threatening its sovereignty on Oct. 2 after an American destroyer sailed close to disputed islands in the South China Sea. **A Chinese warship came within yards of the U.S. vessel, forcing it to change course.** China's claims to the strategically important waters of the South China Sea are disputed by multiple nearby countries.

A BRIEF HISTORY OF

Bolivia's battle with Chile for a pathway to the Pacific

ON OCT. 1, THE U.N.'S INTERNATIONAL Court of Justice (ICJ) ruled against forcing Chile to negotiate giving up a slice of its territory to provide neighboring Bolivia with a route to the sea. Gathered around giant screens in the capital, La Paz, Bolivians watched with dismay. To them, the country's landlocked status is a historical injustice and an affront to national pride.

The dispute began in 1879, when Chile invaded the port city of Antofagasta on its northern border with Bolivia as part of a dispute over taxes. Within a few years, Chileans had redrawn the map of South America by taking almost 50,000 sq. mi. of Bolivian territory, including its 250-mile coastline on the southern Pacific Ocean. Bolivia formally accepted this loss in 1904, when it signed a peace treaty with Chile in return for a promise of the "fullest and freest" commercial access to port.

But the country never forgot its dream of returning to the waters of the Pacific Coast. Every year on March 23, Bolivians celebrate a national Day of the Sea. The dying words of Eduardo Abaroa, a Bolivian hero shot down by Chile in the 1879–84 war, have become an iconic phrase: "Surrender? Your grandmother should surrender!"

Bolivia even has a navy, established in 1963 as a "river force" using cast-off vessels from the U.S. and China. Without a sea to set sail on, its 5,000 members make do with drills in the Amazon basin and Lake Titicaca. They also patrol Bolivia's river borders with Brazil, Paraguay and Argentina.

In 2013, Bolivia's President Evo Morales filed suit at the ICJ to force Chile to negotiate the handover of some of its land. The legal case framed it partly as an economic matter; Bolivia has the second lowest per capita GDP in South America, while sea-hugging Chile has the second highest. Bolivia's former President Eduardo Rodríguez Veltzé told judges at the Hague that the country's annual GDP growth would be 20% higher if it still had a route to international waters. "[It] would make a small difference to Chile, but it would transform the destiny of Bolivia," he said.

Chile says it stuck to its 1904 promise—Bolivia enjoys duty-free port access and its own customs station on the Chilean coast. But Bolivians say they still have to pay for transit to reach the port and that their goods are subjected to unwarranted Chilean checks.

The feud has created tensions between the neighbors, which have suspended full diplomatic relations since 1978. Chilean President Sebastián Piñera celebrated the Oct. 1 ruling among a cheering crowd in Antofagasta and criticized Morales for creating "false expectations and great frustration" among his own people. But Bolivia's dream of restoring its access to the coast is not dead yet. "Despite the unjust report from the ICJ, the Bolivian people's fight continues," Morales said after the ruling. "We will never give up on our sovereign route to the sea." —CIARA NUGENT

ANIMALS

Bouncing back

The Wondiwoi tree kangaroo, last seen in 1928, was thought extinct. But an English botanist recently photographed one *(below)* in New Guinea. Here, animals raised from the dead. —*C.N.*

LAZARUS LIZARD
Everything we knew about the terror skink, a predatory lizard with curved teeth, came from an 1870s sighting in New Caledonia in the South Pacific Ocean. Scientists rediscovered it there in 2003.

STILL BITING
Cuban scientists thought they would never see another solenodon, a shrew-like mammal with venomous saliva. But in 2012, after a decade-long search, Japanese and Cuban researchers managed to find one.

HOPPING BACK
The Hula painted frog lost its home in the 1950s when marshlands in Israel were drained. But in 2011, 15 years after becoming the first amphibian declared extinct, it reappeared in a patch of swampy undergrowth.

DIED
Chicago **blues legend Otis Rush,** at 84, on Sept. 29. He suffered complications from a 2003 stroke.

› Peggy Sue Gerron Rackham, the **inspiration for Buddy Holly's song "Peggy Sue,"** on Oct. 1 at 78. She had at one point been married to the drummer from Holly's band.

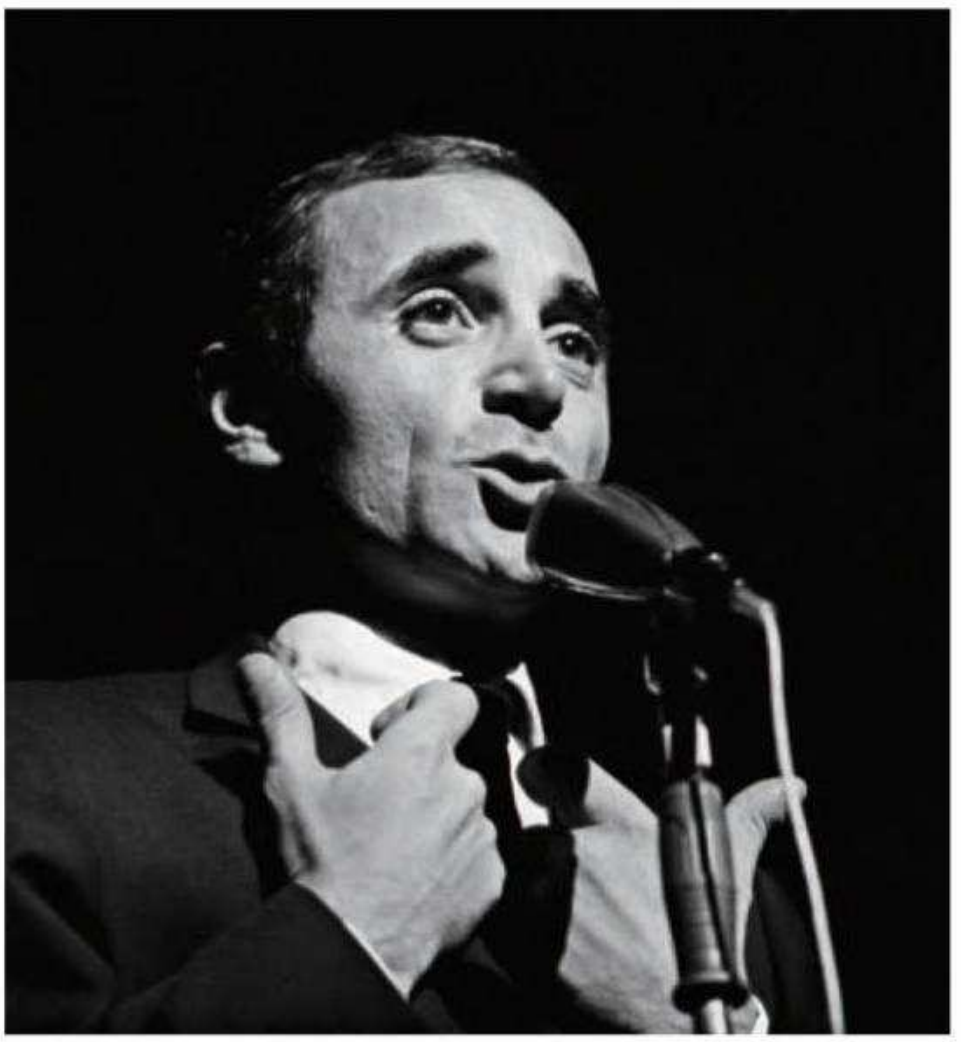
CHARGED
Four men connected to a California white-supremacist group, with **rioting at last year's rally in Charlottesville, Va.,** on Oct. 2.

AWARDED
The **Nobel Prize in Chemistry,** to Frances H. Arnold *(right),* George P. Smith and Gregory P. Winter, for their work using evolutionary biology to design molecules. Arnold is the fifth woman ever to win that prize.

UNVEILED
The detection of the **Goblin, a dwarf planet** located far beyond Pluto, by astronomers, on Oct. 2.

ANNOUNCED
The extension of **civil partnerships, for heterosexual U.K. couples,** on Oct. 2. Such partnerships had previously been available only to same-sex couples.

HIT
A spectator, **by a golf ball at the Ryder Cup** in St.-Quentin-en-Yvelines, France, on Sept. 28. She says she has lost sight in one eye.



French singer-songwriter Aznavour performs in 1964

DIED

Charles Aznavour
France's great chanteur

BY HIS OWN ESTIMATE, CHARLES AZNAVOUR, WHO DIED AT 94 on Oct. 1, penned more than 1,000 songs and sold about 180 million records. Yet he was never done. He packed concert halls in Japan in September and was preparing for six Paris concerts in November. His dream was to live to 100 and die singing onstage.

Aznavour did not get his wish. But his huge body of work will long outlive him. Born to Armenian refugees in Paris, Aznavour began performing with the likes of Edith Piaf in the 1940s and '50s and went on to write iconic ballads like "La Bohème," "She" and "La Mamma." Small and lithe, he poured raw emotion into lyrics about love and loss, leading some critics to say he could be syrupy. Still, his songs were covered by dozens of great artists, including Elton John, Ray Charles and Johnny Mathis, who captured the music's nostalgia for a bygone, less cynical world. Not for nothing was he often called the French Sinatra.

He once said, "I belong to my public," but Aznavour also belonged to France, which marked his death with an outpouring of tributes, and a state ceremony at the burial place of Napoleon Bonaparte. French President Emmanuel Macron, a fan, said Aznavour "accompanied the joys and pains of three generations." And likely of generations to come.

—VIVIENNE WALT

SETTLED

Elon Musk
Securities-fraud charges

ON AUG. 7, WHEN ELON Musk tweeted that he had "funding secured" to take Tesla private, the tweet didn't just drive up the automaker's stock price. The missive also drew the attention of the U.S. Securities and Exchange Commission (SEC). Faced with a securities-fraud charge, Musk is stepping down as chairman of Tesla as part of a Sept. 29 deal with the agency. Though Musk will remain CEO, he and the company will each pay a separate $20 million penalty. Tesla will also appoint two independent directors to its board and form a permanent committee to monitor Musk's statements.

The electric-car manufacturer's troubles also include a Justice Department inquiry and an ongoing SEC inquiry into the company's past statements on production goals. The company did meet its quarterly goal for Model 3 production, and its stock was up following the settlement. But the episode makes clear that as far as the SEC is concerned, Musk will no longer be allowed to run his company as an extension of his eccentric persona.

—ALEJANDRO DE LA GARZA

KANGAROO: MICHAEL SMITH—SWNS; ARNOLD: GETTY IMAGES; AZNAVOUR: HENRI BUREAU—CORBIS/VCG/GETTY IMAGES; MUSK: AFP/GETTY IMAGES

Actor and activist **Robert Redford** might not be ready to retire just yet

By Stephanie Zacharek

ROBERT REDFORD DIDN'T BREAK THE Watergate scandal. But he played one of the guys who did, in *All the President's Men*. He has also never run for public office. But he played a guy who did, in *The Candidate*. And he has never robbed a bank, though in his new movie, *The Old Man & the Gun,* he delighted in playing a real-life character who did so dozens of times and who, when he did get caught, managed 18 prison escapes—and attempted many more. "Normally, when you think of people robbing banks, you think of villains," Redford said, during a relaxed meeting at the Hôtel Plaza Athénée, the day after the film's New York premiere. "This was just the opposite. This was a guy who was happy, just having a great time—not doing this for a living, just living life."

If you consider the types of roles that have attracted him and take into account his longtime environmental activism, you wouldn't be wrong in thinking of Redford as a guy with sturdy principles. But having principles doesn't always mean following the rules: you can't change the world, or have any fun, without breaking a few. Redford's film career—not just as an actor but also as a producer and director—spans some 50 years. His directorial debut, 1980's *Ordinary People,* won Best Picture that year, and he took home the Best Director prize too. In 1981, he cemented his commitment to independent filmmaking by founding the Sundance Institute. His devotion to environmental causes is just as strong: he has been a trustee of the Natural Resources Defense Council since 1975, and in 2015 he made an impassioned appeal at the U.N. Climate Change Conference in Paris. He has written op-eds, in the Washington *Post* and in the pages of TIME, protesting the agenda of then EPA head Scott Pruitt.

But before this serious-minded, hardworking guy was anything, he was a kid growing up in what he describes as "a sort of lower-working-class environment" in Los Angeles. As a teenager, he hung out with a group of guys who often got into trouble. "We were very rebellious, and we made fun of conventional things," Redford said of his high school crowd. "But I was fortunate enough to outgrow them, and I think one of the reasons I did was because I left the city and I left the United States." Before he fell into acting, Redford's ambition was to be a painter. "I wanted to be in Paris, I wanted to be in Spain. So when I was about 19, I saved up enough money to last me for a year. That experience is what really changed my life, because I then saw the outside world."

Up to that point, Redford notes, California politics were dominated by people like then Senator Richard Nixon and Governor Earl Warren. "To me they were just boring guys in suits," he says. "When they talked, nothing registered with me. So I just paid no attention to them. But they had power." Redford's time away changed his view of the world and of his home country. "When I went to Europe, I understood more about politics and about human nature. So when I came back, I was very critical of the politics of my own country. And I think that's what led, eventually, to the activism."

REDFORD'S LOVE of nature was born earlier. He contracted polio at age 11—it wasn't a severe case, the sort that would require being placed in an iron lung, but it did mean weeks of bed rest. As a kid, he'd never been out of Los Angeles. But after his recovery, as a reward for the ordeal he'd been through, his mother took him to Yosemite National Park. "There's a mile-long tunnel when you leave Fresno, Calif. You come out the other end, and suddenly, there's Inspiration Point. There in front of you is Yosemite National Park and all the magical beauty of that area—it looks like it was sculpted by God." He was so awestruck that he ended up working at the park for three summers. "That's when I became not only aware of nature but almost addicted to nature in its purest form."

Now it's as if that landscape has somehow found its way into Redford's very being. At 82, he's trim and agile, with hair somewhere between gray and blond, like striated layers of sandstone. He doesn't look 82, but he doesn't look 62 either; he looks no-age, that mythical ideal only some human beings achieve, his face not easily placeable in any era or even any century. At one point he wedged a slight break in the conversation to ask where I was from. I couldn't imagine that this information could possibly be interesting to him. But he listened, alertly, to the answer and then expanded upon it with another question. Typically, that's a tactic of shy people, a way of momentarily distracting attention from themselves. But unless Redford completely fooled me, he seemed genuinely curious in that quicksilver, of-the-moment way: Here's a new person, one who'll be around only for the next 30 minutes or so. Why not find out a few things while we're here?

That kind of curiosity has led to some of his most enduring projects. As a publicity stunt to promote *The Candidate,* in 1972, Redford embarked on a short whistle-stop campaign tour, during which he had time to talk with both entertainment and political reporters. "The entertainment press was

REDFORD QUICK FACTS

Rebellious youth
Redford spent his high school graduation in the back of the auditorium, reading *Mad* magazine.

Old Man marks a first
Remarkably, Sissy Spacek and Redford had not worked together before *The Old Man & the Gun*.

The actor's craft
He still hasn't watched some of his own film performances, out of a fear they might make him too self-conscious.

ERIC ZACHANOWICH—20TH CENTURY FOX

all hung over, and they were sleeping because they'd had so much to drink the night before," he says. But the members of the political press were gossiping, tuned in to recent events like the Watergate break-in, which had happened just a few weeks earlier. Redford asked the reporters why the incident hadn't received more attention in the news. They described Nixon's "switchblade mentality," his vindictiveness. The reporters said that their newspapers feared reprisal. It upset Redford that the President could have such power over the press.

SHORTLY THEREAFTER, he returned to his home in Utah and, while reading the Salt Lake *Tribune,* noticed "a little, teeny blurb," with a "dual byline," offering more information related to the break-in. Other stories followed, and Redford kept track. He went to great lengths to contact the men attached to that dual byline, Bob Woodward and Carl Bernstein, who, out of fear of wiretapping, at first refused to take his calls. But he persisted, eventually securing the film rights to their story.

Does Redford believe that this Administration will get its comeuppance, as Nixon's did? "I do," he says. "History does repeat itself. I used to think it was stationary, but no longer." He's not sure exactly how it will happen—"It could be similar, that they disintegrate by their own hand"—but he has faith that it will.

'History does repeat itself. I used to think it was station-ary, but no longer.'

ROBERT REDFORD

Meanwhile, Redford persists in, if not breaking the rules, at least bending them. In recent months, the press made much of his claim that he'd be retiring from acting after *The Old Man & the Gun.* Now he isn't so sure. "I think I made a mistake [talking about retirement], which I regret. Because that became the story," he says, when his intention had been to celebrate the film, its cast and its director, David Lowery. He may not act again, or at least not soon. But he does plan to do more directing—and more painting and drawing. "Once I got diverted into acting, that took up all my time. And also, nobody pays an artist! Nobody pays a painter. But I missed it." If Redford is a rebel, he's the practical sort. But now, to paraphrase a line from *The Old Man & the Gun,* he's not talking about making a living. He's just talking about living. ☐

WORLD

Indonesia counts the dreadful toll of an earthquake and tsunami

SARINA WAS HOME FOR AFTERNOON prayers on Sept. 28 when her house began to tremble. At first she wasn't afraid; earthquakes on the Indonesian island of Sulawesi aren't uncommon. But then it happened again, and again. "I knew that when there's an earthquake, it is right to run to the mountain," the 32-year-old mother tells TIME on the side of a narrow road leading from her hometown of Palu. When the tsunami hit, she was out of danger.

Many others weren't so fortunate. By Oct. 3, at least 1,407 people had been declared dead on Sulawesi after a 7.5-magnitude quake followed by meters-high tidal waves laid waste to malls, mosques and homes in Palu and up and down the coastline. The toll is expected to rise as recovery teams begin to reach remote villages and clear debris.

Rescuers say voices crying out from the rubble began to fall silent three days after the quake, just as survivors grew restless from hunger and thirst. Landslides and fissures slowed aid to remote parts of the island, and the Palu airport was rendered useless for days. An air-traffic controller was called a hero after he guided a passenger plane safely off the ground just moments before the runway split open. As his tower crumbled, he was left to take a fatal jump.

Relief is now trickling in as thousands of displaced families beg to get out. "Sadly, there was no early warning," Sarina says. "It just happened."

—FELIZ SOLOMON/SULAWESI

A destroyed mosque in the city of Palu (pop. 380,000), which was devastated by the earthquake and tsunami

PHOTOGRAPH BY HAFIDZ MUBARAK—ANTARA FOTO/REUTERS

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The View

WORLD

THE WAR NO ONE WATCHES

By P.W. Singer and Emerson T. Brooking

Weeks ago, in Afghanistan, the Taliban marked the Eid al-Adha holiday with a surprise attack. It sought to demonstrate that 17 years of effort by the U.S. forces were for naught—and to inspire the American public to bring its troops home, as the Tet offensive playing out on U.S. TVs did during the Vietnam War. There was just one problem.

INSIDE

A BETTER WAY FOR BASEBALL TO ASSESS ITS BEST PLAYERS

WHY BRAZIL'S DEMOCRACY WILL SURVIVE A DEMAGOGUE

A NEW NOBEL PRIZE WINNER CONSIDERS SEXISM IN THE SCIENCES

Almost no one noticed.

Yes, the Taliban seized much of Ghazni—a strategic city just 75 miles from Kabul. But while U.S. troops and their local allies battled for days to regain what they lost, few Americans back home were paying attention.

When U.S. forces first deployed to Afghanistan in October 2001, the war was conveyed in the same way as conflicts past. Journalists followed the troops in, filing stories that graced morning newspapers, evening broadcasts and weekly magazines. Seventeen years later, the troops are still there—nearly 15,000 of them—fighting America's longest war. But most of how that war is told has changed. Just as Facebook (created in 2004), YouTube (2005), Twitter (2006), Instagram (2010), Snapchat (2011) and the like have transformed everything, they have also helped alter what we experience, know and think about war.

A man in an ambulance after a blast in Kabul on Jan. 27

At the time of the U.S. invasion, almost no Afghans went online or used mobile phones. Now, 3.5 million people there use the Internet, and the nation boasts 24 million cell-phone subscriptions. Access to the web exists almost everywhere soldiers are deployed. This connectivity was unimaginable in past wars. Each minute, thousands of new data points tell the unending story of Afghanistan—from U.S. troops' Instagram images and the Taliban's YouTube propaganda to journalists live-tweeting shootouts and civilians sharing their lives like anyone else. All of us can now peer into a war zone, via direct sources, any time of day.

Yet beyond the families of deployed U.S. service members, most Americans have never been so distant from their nation's wars. On Google, searches for "Afghanistan" have seen near constant decline for the past decade. On Twitter, "Afghanistan" is a mix of lightly read news reports and veterans lamenting how little talk there is about the conflict.

Maybe the best illustration, though, comes from America's most influential social-media personality, who now commands not just those soldiers but also the country's attention. As of Oct. 3, @realDonaldTrump had devoted some 30 tweets to the NFL anthem controversy during his presidency. He had tweeted about Afghanistan only five times.

Trump, more than most anyone else in the world, understands what sells online—and what does not. It is telling, then, that the conflict's most "viral" moment in the past 10 years was not an insurgent attack or an American death or a serious discussion of ending the war. Rather it was the showy April 13, 2017, dropping of the "Mother of All Bombs." Across social media, mentions of Afghanistan finally, briefly spiked—but only to say how amusing the name or big the explosion was.

YET EVEN AS the American public drifts further from the conflict, social media has enabled surreal new connections among those who fight it. On 9/11, the U.S. military and the Taliban had literally zero contact; their first exchanges were voiced threats over crackly walkie-talkies, followed by hundreds of bombs dropped by B-52s.

Today they don't just communicate with each other online on a regular basis—they do it in front of the world. As a result, their interactions frequently resemble beefing teenagers, celebrities or, well, politicians. They argue about everything from the justness of their cause to the casualty count after an air strike. (When, in the midst of one angry 2016 exchange, the Taliban feed made reference to a NATO commander's mistress, it left observers aghast. The consensus was that the Taliban, a group that murders women for learning to read, had gone too far.)

Recently, there has been a little-noticed shift. After years of taunting and trolling, the tone of NATO and Taliban social-media feeds has begun to soften. Perhaps this is the beginning of a slow dance toward cease-fire negotiations, akin to once feuding celebrities sending flirtatious signals. Or not.

It is unclear how history will remember the Afghan war. The conflict seems a sort of background static rendered almost inaudible by the sound and fury of the social-media-driven news cycle. But there is one sure thing. Whether we "like" it or not, the war will end—as most things now do—with a tweet.

Singer and Brooking are the authors of LikeWar: The Weaponization of Social Media

SHORT READS

Highlights from stories on **time.com/ideas**

The 'he said, she said' myth

"When two people tell different stories," writes Allison Leotta, an ex-assistant U.S. attorney who prosecuted sex crimes, **"we *can* use common sense, reasoning and investigation to ferret out the truth."** She explains that our thinking otherwise is rooted in laws targeted at rape victims and designed by men in medieval times.

A Cy Young for common sense

Data, argues TIME's Sean Gregory, has helped reveal what measures of success in baseball are fair. **"The metrics that matter are those that strip out factors that the players cannot control,"** he writes. "Pitching wins do the near opposite"—and should be a smaller factor when awarding MLB's biggest prizes.

Christian unity's origins

"For you are all one"—that's what Jesus' first followers heard when they were baptized, writes Stephen J. Patterson, author of *The Forgotten Creed.* He explains that **the point was not sameness but oneness:** "*solidarity* that transcended race, class or gender."

THE RISK REPORT

Brazil's democracy can survive the rise of a diehard demagogue

By Ian Bremmer

THE PAST TWO YEARS have seen angry voters in the U.S., France, Italy, Mexico, Pakistan and other countries cast aside the familiar political establishment to embrace candidates who embody change. Now it's Brazil's turn.

On Oct. 7, voters head to the polls for the first round of Brazil's presidential election. The field includes 13 candidates. Two men have dominated the conversation this year. The first, former President Luiz Inácio Lula da Silva, or Lula, is in prison and won't be allowed to compete.

The other is Jair Bolsonaro, a former army captain and far-right candidate best known for his nostalgia for the military dictatorship that ran Brazil from 1964 to 1985—as well as for a Sept. 6 knife attack that left him hospitalized. He has a history of incendiary remarks against women and LGBT people; in an August interview with TIME, he compared gay men to pedophiles. Despite all this, Bolsonaro is favored to reach a second-round runoff with a single opponent on Oct. 28.

It's not hard to explain why Brazilians are looking for something new. Their country emerged last year from its worst-ever recession, but unemployment remains stubbornly high. Brazil is still embroiled in the largest public-corruption scandal in its history. The Lava Jato (Car Wash) investigation into hundreds of millions of dollars paid by Brazilian construction giants to win government contracts has resulted in more than 200 convictions of figures including politicians and executives. It has driven one former President, Dilma Rousseff, from office and is the reason another, Lula, is in prison.

Violent crime is also on the rise. Homicide rates have hit record highs. Brazil's military has patrolled the streets of poor neighborhoods in Rio de Janeiro since February. A Gallup survey published on Sept. 27 found that just 17% have confidence in Brazil's government and just 14% have faith in the integrity of Brazil's elections.

There is little investment in the future. Brazil's government now spends more to pay interest on government debt than on education or health care. Little wonder then that another recent survey found that 62% of young Brazilians say they'd leave the country if they could. It's this demographic that is driving support for Bolsonaro, too young to remember the brutal regime he idolizes.

Even if Bolsonaro wins, Brazil is no banana republic. Despite its dysfunction, this is a country with strong political institutions

So is Brazil on the verge of a return to its authoritarian past? It's not likely. Though Bolsonaro looks set to advance to a runoff vote, there are plenty of Brazilians who will vote for virtually anyone against him in the second round. Bolsonaro's "rejection rate," the share of voters who say they won't support him under any circumstance, is above 40% and on the rise.

And even if he wins, Brazil is no banana republic. Despite its dysfunction and social problems, this is a country with strong political institutions. Bolsonaro's fringe Social Liberal Party will have few seats and few allies in Brazil's Congress, and unless he can make peace with enough members of the many parties within the political establishment he regularly attacks, he wouldn't pass much legislation—let alone make a bid for dictatorial power.

The lesson of the Car Wash probe is not that Brazil's political and business cultures are corrupt, though certainly they are. It's that Brazil's institutions, unlike those of so many other developing countries where corruption continues unabated, have the means to hold powerful people accountable and to check the excesses of government. If he wins, that will also apply to Jair Bolsonaro. □

AFGHANISTAN: MOHAMMAD ISMAIL—REUTERS; STRICKLAND: GEOFF ROBINS—AFP/GETTY IMAGES

QUICK TALK

Donna Strickland

A recipient of the 2018 Nobel Prize in Physics, for her research on laser beams

You're the third woman to receive this award, the first in 55 years. What are the most significant obstacles to women in the field? More and more people are realizing that it can't just be women saying, "We need this." Men have to get on board, and the majority are. Sometimes it's just inertia.

A prominent nuclear scientist recently said that physics was "built by men." What is your response to that? Over the last 300 years, men worked and women stayed home. But certainly it isn't that women weren't able to do it. [Recipient of the 1963 Nobel Prize] Maria Goeppert-Mayer didn't even get paid to be a scientist. And yet she was doing Nobel Prize–winning work. How ridiculous is that?

You were a graduate student when you published this research. What advice do you have for current students in the sciences? Do what you want to do. I believe in always going with your gut. —*Katie Reilly*

Nation

She said.

How Christine Blasey Ford's testimony moved America

BY HALEY SWEETLAND EDWARDS

PHOTOGRAPH BY ERIN SCHAFF

Ford says Supreme Court nominee Brett Kavanaugh sexually assaulted her in high school

History often seems inexorable in hindsight, shaped by powerful figures operating beyond our control.

GOP Senators surround Senator Jeff Flake, who called for an FBI investigation after Ford testified

But when Dr. Christine Blasey Ford walked in to face the Senate Judiciary Committee on Sept. 27, raised her right hand and swore to tell the truth, it was clear that an unassuming psychology professor and mother of two was about to change the course of current events in real time.

At stake was a potential lifetime appointment to the Supreme Court that could change decades of legal rulings and affect the nation's faith in its judiciary. Control of Congress may have hung in the balance, too, as Senators prepared to assess Ford's allegation that Judge Brett Kavanaugh had sexually assaulted her some 36 years ago, a charge he vigorously denies. Most of all, the hopes and fears of women and men who have lived with the trauma of sexual violence were riding on the credibility of Ford's testimony. Her treatment in the halls of power, and her reception by an expectant public, would send a signal to countless survivors wrestling with whether they should speak up.

So the country was riveted even before the figure known only from a faded photograph finally arrived on Capitol Hill, faced a towering dais of Senators and began to talk. "I am here today not because I want to be," Ford said. "I am terrified." For the next four hours, she answered every question. She admitted the facts she could not remember and recited her memories of that summer night in excruciating detail. The floor plan of the house. The ambush on her way to the bathroom. The sound of the two boys laughing as Kavanaugh allegedly pinned her to the bed, fumbled to remove her clothes and covered her mouth when she tried to scream. When pressed on her recollections, Ford explained how norepinephrine and epinephrine encodes in the hippocampus, her word choice reminding listeners of her Ph.D. in psychology. And when asked how sure she was that it was Kavanaugh who attacked her, Ford did not hesitate. "One hundred percent," she said.

By the time the hearing ended, Ford had done more than prove herself a credible witness. For millions of women and men, she had replaced Kavanaugh as the protagonist in the nomination narrative. Women began calling into C-SPAN to tell their own, decades-old stories of harassment and rape. The hashtag #WhyIDidntReport exploded on social media, a rallying cry for those who had never gone public about their own sexual assault until then. Overseas, young women from San José to London gathered around smartphones and computers to watch the testimony, hands over hearts, mouths agape. In Lyon, a real estate agent rushed home from work to catch the live stream on YouTube. In Hong Kong, a young woman posted a photo in solidarity:

PREVIOUS PAGES: THE NEW YORK TIMES/POOL/GETTY IMAGES; THESE PAGES: DAVID BUTOW—REDUX FOR TIME

"I Believe Christine Blasey Ford."

Ford's testimony slowed the machinery of political power when it was fully in gear. Republican Senator Chuck Grassley, the chairman of the Judiciary Committee, congratulated Ford on her bravery. President Trump, rarely one to give credence to the claims of female accusers, called Ford "a very fine woman" and a "credible witness," and deemed her testimony "compelling." Within hours, three Republican governors and the American Bar Association had called for a delay on Kavanaugh's confirmation vote until there could be a thorough investigation. The prominent Catholic magazine *America* withdrew its support for the nominee. An NPR/*PBS NewsHour*/Marist poll released Oct. 3 found that 45% of respondents thought Ford was telling the truth, compared to 33% who believed Kavanaugh. That's a marked shift from 1991, when Americans sided with then Supreme Court nominee Clarence Thomas after Anita Hill accused him of sexual harassment.

The facts remain unsettled, and Ford's testimony may not prevent Kavanaugh's confirmation. But it was a powerful warning that wealth, status and a record of professional accomplishments were no longer enough to override credible allegations of sexual assault, no matter when they occurred. To young men, it was a message that drunken violence could shadow them all their lives. And to victims, Ford's testimony was an invitation to speak up, no matter how powerful the accused, no matter how long ago the attack. People will listen, the country seemed to reassure them. We will believe you.

VIEWPOINT

WHAT WOMEN DON'T SAY

BY CHRISTINE TODD WHITMAN

The juxtaposition of Dr. Christine Blasey Ford's and Judge Brett Kavanaugh's demeanor was stark. Despite the stress, nerves and emotions that come with detailing her alleged assault publicly, Ford maintained a pleasant disposition, spoke steadily and was deferential. In Kavanaugh's opening statement, the polite nature he had displayed in the hearings weeks before was gone. He was forceful, irreverent and loud; he stood up for himself.

While Kavanaugh's critics have said his behavior revealed a temperament unfit for the Supreme Court, it more importantly demonstrated the double standard for how men and women communicate. Had Ford spoken with the same tone and flippancy as Kavanaugh, she would have surely been described as unstable or combative.

Women who hold elective office face these challenges daily. They often don't speak out as forcefully as their male colleagues. They temper their remarks to be taken seriously. They navigate the assumption that emotional language isn't constructive, that it undermines the point being made, that it is a "distraction." In turn, we are surprised when women speak up, because we aren't used to hearing them.

This is not how our country should work. And so we should increase the number of strong women in leadership roles, both in politics and business. Doing so would help normalize their voices—and empower people who will listen to victims of sexual assault, hopefully encouraging them to feel safer in sharing their stories. This would lead to actual justice for victims and due process for the accused.

In just about one year, our country has profoundly changed the way we address victims of sexual abuse, harassment, assault—and their abusers. But Ford and Kavanaugh showed how far we still have to go.

Whitman was administrator of the EPA and the Republican governor of New Jersey

Women protested Kavanaugh's nomination inside the Dirksen Senate Office Building in late September

KAVANAUGH TESTIFIED, TOO, of course, and with a vehemence that read as a Rorschach: where accusers saw intemperance, supporters saw justified outrage. The nominee had reclaimed the spotlight, and Republicans clamored for a quick vote. But the following day, before the vote could be held, two women confronted Republican Senator Jeff Flake, one of a handful of swing votes, in an elevator. One of them, Ana Maria Archila, had recognized herself in Ford. She too had remained silent about a sexual assault more than 30 years ago. It took her a decade to tell her mother; her father only learned of the incident, she told TIME, when she buttonholed Flake on live television. "This is not tolerable," Archila told Flake, her voice heavy with emotion. "You have children in your family. Think about them."

Within a few hours, Flake had a change of heart. While he said the elevator encounter wasn't the sole reason, he announced he would only support Kavanaugh after another FBI investigation. The resulting probe, which included another allegation of sexual misconduct from a college classmate, slowed Kavanaugh's nomination and launched a new round of partisan fighting. White House counsel Don McGahn, one of the key supporters of Kavanaugh's nomination, reportedly was involved in approving witnesses for FBI agents to interview; several people who said they had information about Kavanaugh told reporters the FBI didn't call them back.

As Ford galvanized sexual-assault survivors, the nominee's defenders cast him as the victim. "This could happen to any male who has been in a room with a woman alone because the story has not been corroborated," says Victoria Belk of Liberty University, who spoke recently at pro-Kavanaugh rally. "Any woman can ruin a man's life." John Cornyn of Texas, the second highest-ranking Senate Republican, said everyone should be able to sympathize with Kavanaugh. "Every female's got a father, some have a husband, some have a son," he told TIME. "I would think they would want those people treated fairly just like we want Dr. Ford treated fairly."

Some Republican analysts see the confirmation battle as a winning issue for a party keen to drive its base to the polls in a difficult election year. The National Republican Congressional Committee saw its donations spike by 175%, compared with a week earlier, according to Politico. But Meghan Milloy, co-founder of Republican Women for Progress, says the GOP isn't paying enough attention to the reaction among women. Among white women with college degrees—a demographic with whom Republicans are struggling—61% believed Ford was telling the truth, according to Quinnipiac. Overall, the survey indicated women oppose Kavanaugh's confirmation 55% to 37%, while men support it 49% to 40%.

For many, like Jen Pollock Michel, an evangelical writer, the hearings stirred complicated questions. She is a social conservative, but Ford's testimony made her cry. "As a woman, it's hard not to say that doesn't feel credible or believable because I know a thousand stories like it," she says. Sharlee Mullins Glenn, a founder of Mormon Women for Ethical Government, also described misgivings. Some in her community want to see a conservative Justice, but if Kavanaugh were innocent, why did he evade Senators' questions about calling for a complete investigation? "It raises a red flag," she told TIME.

REPUBLICANS' RESTRAINED treatment of Ford did not last long. While some GOP Senators privately whispered that they still found her credible, others dismissed her "mixed up" memories in fiery public remarks. By Oct. 2, Trump, always attuned to the moods of his base, had scrapped his measured comments and mocked Ford at a Mississippi campaign rally, mimicking her inability to remember the exact location of the house or which day the attack allegedly took place. The prospect that Kavanaugh's nomination could fail because of a decades-old allegation is "very dangerous for our country," he warned. In 2016, when Trump was facing several sexual-misconduct allegations, 62% thought such allegations were not a deal breaker. The nation might agree: two-thirds of voters thought Ford's allegations, even if they were true, were not necessarily enough to force Kavanaugh to withdraw from consideration, according to Quinnipiac.

But even if Kavanaugh joins the bench, Ford has cemented herself as a historic

figure. In her courage, many Americans saw the opposite of everything they think is wrong with Washington. Politicians spin, fudge the truth, grasp at power. Ford appeared guileless.

When she spoke with the Washington *Post* in September, she described her reluctance to go public, given the likelihood that Kavanaugh would be confirmed anyway. "Why suffer through the annihilation if it's not going to matter?" she asked. Indeed, the backlash she and her family endured was worse than she thought. They have been driven from their home, bullied by death threats and forced to hire private security guards. Critics have smeared her as a two-bit political operative and sneered at her sexual history. Her name, even in the best circumstances, will forever be associated with the darkest moment of her life.

Yet she chose to speak up anyway, out of what she saw as civic duty. That kind of courage is rare, especially in Washington today. And Ford showed how powerful it can be. —*With reporting by* ALANA ABRAMSON, PHILIP ELLIOTT *and* ABBY VESOULIS/WASHINGTON; ELIANA DOCKTERMAN/NEW YORK; CIARA NUGENT/LONDON; SUYIN HAYNES *and* ARIA HANGYU CHEN/HONG KONG

DAVID BUTOW—REDUX FOR TIME

VIEWPOINT

WHAT'S CHANGED SINCE 2016

BY CHARLOTTE ALTER

There she was: a professional blond woman, speaking carefully, trying to say only what she knew to be true. There he was: an angry and red-faced man, shouting accusations about partisan conspiracies. Her allies asked why a man accused of sexual assault should sit in one of the most powerful seats in the nation. His found reasons to ask if this woman could really be trusted.

It was like watching a re-enactment of the 2016 election, all in one day. Christine Blasey Ford's testimony to the Senate Judiciary Committee about her alleged sexual assault by Brett Kavanaugh and the judge's furious rebuttal dredged up all the questions about truth, gender and power that defined the 2016 battle between Hillary Clinton and Donald Trump. Two years after an election that hinged on what women are allowed to achieve and what men are allowed to get away with, the hearing was a reminder to many that a man can still get away with a lot.

To American feminists, the 2016 campaign offered bitter lessons. That the nation would look the other way on allegations of sexual assault. That women didn't have the kind of cohesive political power that was needed to elect a female President. That in the brutal economy of he said, she said, some people's words have more value than others', and it is almost always her words that are valued less. Trump won in 2016 despite being accused of sexual misconduct by at least 16 women. A Quinnipiac poll in October of that year found that just over half of voters thought the allegations were true, but less than a third considered them disqualifying. Trump carried 52% of the white women's vote.

And so Clinton was relegated to hikes in the woods, while a President accused of sexual assault nominated a judge accused of sexual assault to the Supreme Court, a man who conservatives hoped would be the swing vote to overturn or substantially weaken the abortion protections established by *Roe v. Wade.* It felt like compounded injustice: an alleged abuser nominating another alleged abuser to take away the bodily autonomy of millions of women.

But something has shifted since 2016. On the first full day of Trump's presidency, nearly 4 million Americans gathered for the Women's March,likely the largest single-day protest in U.S. history. In the months that followed, women started speaking up about their experiences with sexual assault in a cascade that became the #MeToo movement. Male impunity began to crumble, and powerful figures were toppled. A year after Trump's election, 89% of voters told Quinnipiac that sexual harassment of women was a serious problem, including large majorities in both parties and both sexes. In that same poll, 62% of voters said they wouldn't vote for a candidate accused of sexual harassment.

Since Clinton's defeat, a record number of female candidates have stepped up to run for office themselves. At least 476 filed paperwork to run for the House of Representatives in 2018, three-quarters of them Democrats. Between 30 and 40 new women are poised to win election to the House and Senate in November, according to David Wasserman of the nonpartisan Cook Political Report, which would shatter the record set by the 1992 "Year of the Woman." Even before Ford came forward, 71% of Democratic women said they were "very motivated" to vote.

That's why the Sept. 27 hearing had such powerful echoes. Another blond woman, another loud man. Like Clinton, Ford tried to focus on details: she refused to name who pushed her into the bedroom where she says she was assaulted, for example, because she was pushed from behind and couldn't know for sure. Like Trump, Kavanaugh issued blanket denials while making claims that strained credulity: the self-described treasurer of the "Keg City Club," testified under oath that he never blacked out from drinking, an assertion some former classmates greeted with skepticism. This time, there are no hacked emails or immigration debates to distort the central question: When she says one thing and he says another, whom does America believe?

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50

GENIUS COMPANIES

At the heart of every great business is a creative solution to a problem—and those solutions sometimes change the world. To assemble TIME's first annual list of Genius Companies, we asked our global network of editors and correspondents to nominate businesses that are inventing the future. Then we evaluated candidates on key factors, including originality, influence, success and ambition. The result: 50 companies that are driving progress now, and bear watching for what they do next.

THE 2018 LIST

23ANDME
AGRIPROTEIN
AIDOC
AIRBNB
AMAZON
APEEL SCIENCES
APPLE
AWAY
BABYMIGO
BIRD
BITLAND
BRCK
BUMBLE
CAMEO
CLUE
COMMONBOND
DISNEY
DJI
DOMINO'S
DUOLINGO
EPIC GAMES
EVERLANE
FENTY BEAUTY
GOFUNDME
GW PHARMACEUTICALS
HOUSTON ASTROS
IMPOSSIBLE FOODS
INTERMEDIA LABS
LISHTOT
LOCKHEED MARTIN
MERCK
NETFLIX
NIKE
NINTENDO
OBVIOUS
OCULUS
ONA
OPORTUN
PAYTM
PELOTON
PINTEREST
SINGAPORE AIRLINES
SLACK
SPACEX
SPOTHERO
SPOTIFY
VOLVO
WEWORK
WONDERBAG
XIAOMI

DISNEY

LEADING THE MAGIC KINGDOM INTO TOMORROWLAND

BY BELINDA LUSCOMBE

THREE OR FOUR TIMES A YEAR, DISNEY CEO AND chairman Bob Iger crosses from his office on the Burbank, Calif., lot with a couple of fellow execs to Disney Animation Studios, where rooms have been prepared for them. In each, they are pitched a movie. Sometimes the films are no more than an idea, and the room just has some art boards and a director with a 15-minute plot outline. Others are more elaborate—the room for *Frozen 2* included a video from a research trip to Norway, Iceland and Finland, a "tone reel" and a wall of index cards detailing themes and emotional threads. Sounds like fun—except that each room represents a $150 million bet on what, in four or five years, audiences will pay to see.

Iger, 67, is good at picking winners. This is, after all, the man who greenlighted *America's Funniest Home Videos*. On his watch, Disney has released five of the top 10 grossing global hit movies of all time, selling a cumulative $8.4 billion worth of movie tickets. And not only did he sign off on those movies, he also spearheaded the purchase of the companies that made them, which requires prophetic skills of a whole different order. Apple CEO Tim Cook says Iger operates a lot like a tech-company CEO. "Both are trying to skate to where the puck is going and not where it is. We're making calls years in advance."

Of course, figuring out which films to make is a fundamental skill for any media mogul. What really distinguishes Iger from rival Hollywood CEOs—and what has insulated Disney from the vast shifts in viewing patterns that have battered others—is his conviction that an already gigantic company should keep getting bigger. While competitors mostly avoided risks at this scale, Iger spent lavishly to buy Pixar ($7.4 billion), Marvel ($4 billion) and Lucasfilm ($4 billion), giving Disney a lineup of moneymaking franchises that far outdistances competitors'.

Although some critics bemoan the sequelization of Hollywood, no one doubts that Iger's moves have paid off. Audiences, most of the time, keep buying tickets. And "sequel" doesn't actually do justice to Iger's achievement: with the Marvel and *Star Wars* films, Disney has acquired entire fictional universes that can spawn lucrative new content in all directions. A Marvel movie character can power a new Disney theme-park ride, inspire a TV series and serve as the focus of a video game, all under the Disney tent.

More remarkable, in an industry of big egos, Iger's relatively hands-off management style has allowed Disney to swallow these companies without masticating the qualities that make them unique. Industry observers say Iger's collaborative approach has been critical to retaining the creative talent that made the properties worth buying—and in some cases, made those deals possible. (Iger famously took a Disney-Pixar relationship that had frayed under his predecessor and persuaded Steve Jobs to let Disney buy the animation powerhouse outright.)

When TIME set out to identify the most creatively successful companies in the world, candidates ranged from brilliant upstarts to household names. But even in that elite group, the Walt Disney Co. stands out. So far in 2018, Disney has released the top three U.S. box-office hits. And Iger has topped his own bigger-is-better strategy with a $71 billion deal to buy 21st Century Fox's entertainment assets, bringing into the fold everything from *Avatar* to *The Simpsons*. Now the studio that began in the back of a real estate office by selling its first cartoon to one distributor in 1923 is poised to launch its own streaming service. By eliminating the middlemen and selling content directly to consumers, Disney will disrupt the disrupters. "I don't think anybody else could do this but us, frankly," says Iger.

IN 2005, when Iger was named Disney's sixth CEO, the company was in a rut. The brand felt dated, age-limited and low-quality. The previous CEO, the mercurial Michael Eisner, had some brilliant years and some not so brilliant, during the last five of which Disney stock fell by roughly a third. Iger was a veteran TV executive who had come to the company when it bought Cap Cities/ABC in 1996. Eisner's deputy since 2000, he was seen by many as his faithful puppet.

Since Iger took control, however, the company's market cap has grown fourfold, to $175 billion. It has delivered healthy total shareholder returns (488.5% vs. 212.6% for the S&P 500). Disney became the first company to put its shows on iTunes, and applied for over four times as many patents as before. Its theme parks, once reserved for Disney characters only, are full of Marvel, Pixar and Lucas attractions. More than 150 million people visited last year.

The successes have kept Iger bolted to the CEO chair in Burbank years longer than even he expected. Four times he has announced plans to retire, only to remain, outlasting several heirs apparent. He's currently slated to retire in 2021, dashing (forever, says Iger) the dreams of friends, including Oprah Winfrey, who hoped he'd run for President as a business-friendly Democrat.

Wall Street has been happy to see Iger stay. "His record has been fantastic," says Tim Nollen, an analyst at Macquarie Capital. "I think what he did right was recognize the company's strengths and invest in those strengths." Iger says the key to his strategy has been to put his money where the creators are.

A very good year

All three of America's highest-grossing 2018 films came from Disney:

Black Panther
$700 million

Avengers: Infinity War
$679 million

Incredibles 2
$607 million

BLACK PANTHER: MARVEL STUDIOS; INCREDIBLES: DISNEY PIXAR; AVENGERS: MARVEL STUDIOS

PHOTOGRAPH BY SPENCER LOWELL FOR TIME

Bob Iger "is taking a great American brand and continually making it better," says Apple CEO Tim Cook

CREDIT HERE

"Nothing is more important than the creators, the creative process and the creative output," he says. "You're basically making bets on people and ideas vs. anything else."

He calls them bets, but Iger doesn't really have a gambler's style. He prefers to work as part of a syndicate that uses a well-tested system. The pitches at Disney Animation are more like long-running conversations than one-shot deals, an approach that feels relatively organic. "It's not a big heavy discussion," says *Frozen*'s co-writer-director Jennifer Lee, who also runs the animation division. "By the time we arrive at what we feel is the right film to go next, he's been on the journey with us the whole time and we've had a lot of smaller conversations. He definitely respects the process, that it's an evolution."

Iger's franchise-heavy strategy also purposely leans toward favorites rather than artistic long shots. In a world where content is proliferating, he believes audiences opt for the most recognizable. "When consumers are faced with so much choice, it's very helpful to them to know going in what something might be," he says. Rather than creating movie stars, as the Hollywood enterprises of yore did, or elevating auteur-directors, as the Miramax-style studios did, Iger has focused on establishing brands. "He's refined the business," says Rupert Murdoch, executive co-chairman of Fox. "He built this thing around reliable franchises, whether it's with Pixar, with Lucasfilm or with Marvel, which then play right into the theme parks and everything."

Purchasing creative engines is not the same as dreaming them up—in the way that, say, Walt Disney did—but Iger's ability to manage such enterprises has made his firm the go-to steward of cultural producers at a time of upheaval, when creators are looking for a safe harbor. How (other than fat checks) does he persuade people to hand over their brainchildren? "The negotiation is the small part of it," says Apple's Cook. "The big part is the vision."

Former superagent Michael Ovitz, who details his short and unhappy tenure as a Disney CEO-in-waiting in his new book *Who Is Michael Ovitz?*, did deals for clients when Iger was head of ABC. He says Iger was the same kind of negotiator he is a CEO. "He's quiet and strong and doesn't pound the table," Ovitz tells TIME, "but he gets his point across." And when Iger lays out his vision, most people, from his board to his shareholders to Steve Jobs, assent.

Iger's vision for Fox—along with some $71 billion—is what helped him land his biggest fish yet. "Rupert believed that where it was at the time, which was August of 2017, that Fox wasn't necessarily as well set up for long-term success in the businesses that were transforming right before his eyes," he says. Curiously, Murdoch puts it slightly differently. "Bob called into my place one day and we got talking, and he said, 'Well, look, perhaps we should put everything together,'" says Murdoch, who was struggling to increase his company's stake in the U.K.'s Sky at the time. "I thought it was a good idea. He probably hit me at a moment when I was frustrated." (In the end, Sky went to Comcast, and Fox is selling its portion of the company.)

With the purchase of Fox, Iger is mustering the forces first grounded in creativity to take on the forces first grounded in delivery, such as Netflix and YouTube. In 2019, Disney hopes to launch its streaming service. This is a leap of faith of Summit Plummet proportions. The biggest generator of the company's revenues is TV. Until recently, Disney sold its programming—especially ESPN—to cable companies for reliably large sums. But those profits are shrinking. ESPN has lost 11 million subscribers since 2013. More viewers abandon cable every month, while Netflix has 125 million customers, Amazon Prime 100 million and YouTube 1.8 billion monthly users. Disney's hope is to lure people to its stream with content that can't be found anywhere else. As tech upstarts pour vats of money into creating original programming—Netflix is spending $8 billion this year—Disney is sitting on a mother lode.

Iger thinks he knows how to coax consumers who already pay for one streaming service to either add another or switch to Disney's. "We're going to do something different," he says. "We're going to give audiences choice." There are thousands of barely watched movies on Netflix, and Iger figures that people don't like to pay for what they don't use. So families can buy only a Disney stream, which will offer Pixar, Marvel, Lucas, Disney-branded programming. Sports lovers can opt just for an ESPN stream. Hulu, of which Disney will own a 60% stake after it buys Fox (and perhaps more if it can persuade Comcast to sell its share), will beef up ABC's content with Fox Searchlight and FX and other Fox assets. "To fight [Amazon and Netflix], you've got to put a lot of product on the table," says Murdoch. "You take what Disney's got in sports, in family, in general entertainment—they can put together a pretty great offer."

While folks stumble over themselves to praise Iger's vision, and his execution thereof, fewer of them call him a visionary. His focus on brands has made him much less likely to be seen as the kind of artistic guru who gets thanked tearfully from the stage at the Academy Awards. "I think it's safe to say what he does well is management," says Brian Wieser, an analyst at Pivotal Research. "He's never tried to be the thought leader in any particular sphere. There's no one thing of which you'd say he was the oracle."

This is not meant to be an insult. Finding talented people and setting up an organizational structure that allows them to do what they do well requires a particular form of wisdom. "He doesn't lose anybody he doesn't want to lose," Ovitz says of Iger, who is reputed to regard his executives as more expendable

Iger on his biggest deals

Pixar
$7 billion
"I had a vision, and [Steve Jobs] made me prove that my vision was right."

Marvel
$4 billion
"It was less about formed ideas than it was about a treasure trove of characters."

Lucasfilm
$4 billion
"It was like buying [George Lucas'] legacy."

Fox
$71 billion
"Murdoch believed what we were doing could be applied to his business."

COCO: DISNEY; IRON MAN: MARVEL STUDIOS; STAR WARS: SHUTTERSTOCK; THE SIMPSONS: FOX

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than his creatives. "He gives them plenty of rope, and when there isn't performance, he makes a change." Adhering to this structure requires discipline, which, along with impeccable grooming, Iger is famous for; he rises at 4:15 a.m. and follows a fitness regimen that sometimes includes working out with his eyes closed as a kind of meditation. The discipline is both innate and acquired, largely by setbacks. "How you process failure at a company that thrives on great creativity is critical," Iger says. "You can't wallow. You have to know how to absorb creative disappointments, knowing that there are inevitabilities to that."

Having a leader who is willing to insulate key creative people from the vicissitudes of business has helped Disney successfully incorporate its prominent acquisitions. They have not been Disneyfied. Marvel movies are not all of a sudden family friendly (at least not by Disney standards). Pixar movies have not been required to add princesses. Most of the people who ran the companies before Disney bought them still run them (with the exception of John Lasseter, who was ousted in June in the wake of #MeToo). "I've been watching him with his people and with Fox people; he's clearly got great leadership qualities," says Murdoch."He listens very carefully and he decides something and it's done. People respect that."

GIVEN WHAT HE'S ACHIEVED at Disney, Iger gets graded on a tough curve—and it's about to get tougher. The animation division has lost its chief in Lasseter, and it remains to be seen how that changes the culture. Many of ESPN's sports deals will need to be renegotiated within five years, and they're only getting pricier. There's evidence of franchise fatigue: the newest *Star Wars* film, *Solo,* did not blow the doors off the box office. And Iger still has to find someone to take over his job by 2021. On the plus side, fans will get a chance to fly the *Millennium Falcon* at the new Star Wars Land at both Disney World and Disneyland next year. Visits to the $5.5 billion Shanghai Disney park exceeded expectations. Over at the studio, director Lasse Hallstrom has taken on *The Nutcracker,* Tim Burton has taken on *Dumbo,* and Elsa and Anna have agreed to come back for *Frozen 2*.

Nobody is more excited by any of these developments than Iger, who has an almost boyish enthusiasm for what he does. He's a consumer. He's a fan. Before our interview he was watching the Sophia Loren–Clark Gable movie *It Started in Naples* in his office. The previous night he was listening to *Queen,* Nicki Minaj's new album. ("I'm not prudish," he says, "but she's taken explicit to a whole new level.") Iger insists that he's not creative, which may be why he is such an adept partner of those who are. "My perfect day is a day where I'm engaged the most in creative processes and with creators," he says. "Any day that has none of that is a bad day." ◻

IMPOSSIBLE FOODS

MAKING MEAT **OBSOLETE**

Stanford biochemist Pat Brown was on sabbatical when he resolved to take on what he calls "the most destructive technology on earth"—livestock rearing, which uses about 80% of the world's agricultural land and produces more greenhouse gases than transport. But he concluded that getting people to go vegan was unrealistic. So he founded Impossible Foods and engineered a plant-based meat substitute that uses heme—a component of an oxygen-carrying molecule also present in blood—to replicate the delicious characteristics of beef. Glowing reviews have propelled the company's flagship Impossible Burger to an improbable start. A year ago it was available at 40 U.S. locations; now it's at more than 3,000 worldwide, including burger chain White Castle. Brown's startup also received a critical boost in July, when the FDA signed off on the safety of heme—ensuring more juicy vegan "meat" to come. —*Joseph Hincks*

XIAOMI

SMARTER SMARTPHONES **AND BEYOND**

The world's fourth largest smartphone maker doesn't have a lot of name recognition in the West—yet. But across Asia, Beijing-based Xiaomi is the "Apple of the East." There are some obvious similarities: Xiaomi phones are sleek and the company sells them in its own retail stores (called Mi shops). Founder and CEO Lei Jun even favors black shirts with stonewashed jeans. But Xiaomi's appeal is also tied to its low-price business strategy. It charges less than a 5% markup over cost for key hardware like the Mi Mix 2S phone, which retails for around half the cost of Apple's iPhone X. Xiaomi then profits from apps and online services such as gaming and streaming TV. It also offers a much wider variety of products—everything from surveillance cameras to rice cookers. And they're headed your way. Lei told TIME in May that he has "confidence that we will eventually succeed in the American market." —*TIME staff*

IMPOSSIBLE FOODS; IMPOSSIBLE FOODS; NINTENDO; NINTENDO; AWAY; AWAY; EPIC GAMES; EPIC GAMES/KOCH MEDIA; WONDERBAG; WONDERBAG; NIKE; JUSTIN SULLIVAN—GETTY IMAGES; APPLE; APPLE; DJI; KIKE CALVO—REDUX; CAMEO; CAMEO; LANCE BASS

NINTENDO

Gaming's Master of Extra Lives

Nintendo has made a habit of resurrection. Some predicted doom after 2012's poorly received Wii U, particularly with countless smartphone games competing for players' attention. The Kyoto-based maker responded with the hybrid console/mobile Switch, which lets owners play at home on the big screen or on the go. Thanks to titles like *Mario Tennis Aces,* sales are booming: Nintendo said earlier this year it's now the fastest-selling console in history.

—Alex Fitzpatrick

AWAY

Easing Travel's Tribulations

A carry-on case with a built-in USB charger? Check. Collaborations with fashion designers? Check. In a product category that has seen few innovations since the rolling bag, Away's luggage has gained cult appeal for road warriors, expanding to more than 20 countries. The brand's mission, as it moves into backpacks and accessories, isn't just to build better suitcases—it's to change the way you travel. "Luggage is just the beginning," says founder Steph Korey. *—Molly Ball*

EPIC GAMES

Winning With Virtual Battles

You probably know Epic Games' blockbuster, *Fortnite*—or at least know a teen obsessed with it. In a virtual "battle royale," 100 players vie to be the last one standing on a gigantic island. Opponents are real people, hooked in over the Internet. Unlike most top-tier video games, Fortnite is available for free. Epic makes money on in-game avatars and add-ons. Although competitors are under pressure to duplicate Epic's success, *Fortnite* stays fresh with regular updates.

—Patrick Lucas Austin

WONDERBAG

A Cooking Tool for Good

How do you cut dependence on fossil fuels in sub-Saharan Africa while freeing up women from time in the kitchen so they can pursue education and employment? The Wonderbag is a non-electric, go-anywhere slow cooker. Once a pot of food has been brought to a boil, it can be placed in the heavily insulated bag to keep simmering. This year marks 1.5 million in use. It's also helping women earn: many sell or make the bag, or use it in a catering business.

—Suyin Haynes

NIKE

Taking a Stand

Nike has a knack for tapping cultural conversations—and courting controversy. Its new ads feature ex–NFL quarterback Colin Kaepernick, whose kneeling during the national anthem to protest social injustice inspired both a movement and a backlash encouraged by President Trump. Despite some outraged owners burning their sneakers, year-over-year online sales jumped 28% in the days after the ads were released, according to Edison Trends.

—Sean Gregory

APPLE

Relentless Innovation

Apple has a virtually unmatched history of inventing category-defining gadgets, and it keeps innovating in smaller but nonetheless profound ways. The latest Apple Watch, unveiled Sept. 12, will be able to measure the electric signals of a wearer's heart by taking electrocardiograms—producing data that can then be analyzed for potential health issues or shared with a medical professional. In other words, it could save lives—not bad for a $399 gadget. *—A.F.*

DJI

The Drone Dominator

China's DJI towers over the drone industry. From the hulking $4,999 Hollywood-caliber Matrice 600 Pro to the palm-size $399 Spark, DJI is the nearly undisputed king of quadcopters, with a 72% market share globally. Its drones are reinventing family photos (you can gesture to your drone to take a selfie), even as they help companies in fields like energy, telecommunications and construction get new perspectives on their work. *—A.F.*

CAMEO

Famous Faces on Demand

Need a gift for a pop-culture-obsessed friend? Cameo has a new option: brief personalized video messages recorded for you by one of more than 3,500 celebrities, including actor Tom Felton, who played Draco Malfoy in the *Harry Potter* films ($333 per message), and former 'N Sync member Lance Bass ($150). Influencers get a way to monetize their fame; fans get a unique birthday greeting or congratulations ready for sharing on social media.

—Raisa Bruner

DUOLINGO

Learning on the Fly

Forget *Candy Crush.* This app lets you use your phone to learn a new language by making it a game, earning you points as you master one of 27 tongues from Irish to Korean. "We're using a lot of the techniques that games like *Angry Birds* use to get you addicted," says founder Luis von Ahn, "but for learning a language." Addicted is right. Duolingo now has 300 million users, up from about 200 million a year ago.

—Sean Gregory

SPOTIFY

Soundtrack for the World

Despite fierce competition from Apple and Amazon, Spotify's streaming-music service is thriving—thanks to eerily accurate personalized playlists and its availability on a wide range of devices. More than 83 million subscribers now pay around $10 per month for its Premium tier. And it's disrupting the music industry through direct deals with artists—from up-and-coming indie musicians to headliners like Drake.

—Patrick Lucas Austin

PAYTM

India's Digital Wallet

With more than 350 million account holders, Paytm has matured into India's biggest digital-payment platform, expanding into everything from movie tickets to gold. It also turned founder Vijay Shekhar Sharma, 40, into India's youngest billionaire. His vision is growing: Paytm launched in Canada last year and plans a partnership in Japan. "We believe in the 'Built in India, built for the world' philosophy," Sharma says. *—Naina Bajekal*

SPACEX

BLAZING **A NEW PATH** TO ORBIT

While Elon Musk's electric-car maker, Tesla, has had a turbulent year—most notably with the SEC's recent decision to sue Musk for his abortive announcement on Twitter that he was taking the company private—his other high-profile company is transforming space travel. By cutting the cost to reach orbit while introducing technological innovations, SpaceX is helping lift the entire space sector.

The past year has been especially bright. Flights of the Falcon 9 rocket *(above, in a June launch)* continued apace. January marked the first flight of the Falcon Heavy—a 27-engine model able to muscle the largest payloads to space for $90 million to $150 million, compared with $350 million for the Delta IV, a government and private-sector workhorse. Musk made the launch memorable by sending along a Tesla with an astronaut dummy at the wheel.

SpaceX is also continuing to succeed at safely landing the first stage of its Falcon rockets. Rather

SPACEX; 23ANDME; GABRIELA HASBUN—REDUX

than tumbling into the ocean after its work is done, a Falcon's first stage descends under controlled rocket power, to be used again.

There are challenges: SpaceX has been slow getting astronauts into space. The company's first crewed flights were supposed to be in 2016. Now they're not expected until 2019—if then. And although Musk's public missteps have mostly hurt Tesla, they shake confidence in all of his companies.

Still, with every successful launch, SpaceX is showing that a now familiar technology can be transformed in new and industry-leading ways. *—Jeffrey Kluger*

ONA

Reaching the Last 5%

Some public-health problems are mountains, and some are millions of molehills. Kenya-based software company Ona uses satellite imagery and information from NGOs to create a simple digital mapping system that helps health workers locate remote dwellings and identify what health services they need, in real time, in the field—vital in interventions like malaria spraying and vaccine distribution.

—Belinda Luscombe

SLACK

Changing How We Work

Email overload is crushing—which is why some 70,000 firms now use Slack, a supercharged chat-room app for desktops and smartphones. You can simultaneously work on a project due next week, organize a colleague's birthday surprise and tap thousands of other apps, like Google Drive or Trello, all without leaving the screen. No wonder it's becoming a verb, as in, "I'll Slack you."

—P.L.A.

LISHTOT

A Solve for Safer Water

What if you could gauge water safety with the touch of a button? That's the promise of Israeli company Lishtot, whose $50 TestDrop Pro—a device small enough to fit on a keychain—can scan water's electric field, which varies based on contamination levels, and flash a blue light if it's safe to drink. "It's not just about making money," CEO Netanel Raisch says of the device, which launched in July. "We built the company to help people." *—Billy Perrigo*

MERCK

TAKING ON **EPIDEMICS**

Following the deadly 2014 Ebola epidemic in West Africa, it was clear that a vaccine was desperately needed. Merck acquired a promising candidate from researchers in Canada, then took on the task of testing it on 18,000 health care workers and other volunteers. While it's experimental for now, results were encouraging when it was deployed this May in the Democratic Republic of Congo. Ongoing civil conflict may make containing that outbreak challenging, but Merck has promised to make it available wherever needed. "We do not intend to profit from this vaccine," says executive VP Roger Perlmutter. *—Alice Park*

23ANDME

UNLOCKING DNA FOR ALL

Genetics was once the purview of academics. Then along came 23andMe, led by Anne Wojcicki *(above).* In March, the FDA approved its home test for cancer risk. For $199, customers can mail in a saliva sample and learn weeks later whether they have increased risks for breast, ovarian or prostate cancers. (23andMe got approval last year for tests related to risk for Parkinson's, Alzheimer's and other conditions.) Results aren't definitive; tests look at only three of the 1,000-plus known BRCA1 and BRCA2 gene variants that could signal higher risk. But there's no denying that consumers have a new window into their genetic health.

—Mandy Oaklander

GOFUNDME

Cutting the Cost of Giving

Since its 2010 launch, fundraising platform GoFundMe has facilitated more than $5 billion in donations to various causes from 50 million people. Although in the past the company took a 5% cut to cover costs, last year GoFundMe instead started asking for voluntary "tips" to cover overhead, putting its fate in the hands of what CEO Rob Solomon likes to call "the giving layer of the Internet."

—Katy Steinmetz

OBVIOUS

The Art of an Algorithm

What is art? A group of French artists named Obvious has a new answer: images created by artificial intelligence. Using 15,000 paintings from the 14th century to the 19th century, they trained an algorithm to create its own original artwork. They listed the first work, a portrait titled *Le Comte de Belamy,* in January for €10,000 (about $11,600) and quickly found a buyer. Christie's is set to auction a second piece on Oct. 23. *—Ciara Nugent*

CLUE

Advancing Female Health

With 10 million active users, menstrual-tracking app Clue has the largest data set on menstruation in existence, and it's making use of what founder Ida Tin calls "a historic opportunity to advance research" by partnering with academic institutions like Stanford and Oxford to help scientists better understand everything from symptom patterns to disease detection to female attitudes toward condom use.

—Naina Bajekal

AGRIPROTEIN

TURNING **WASTE** INTO FEED

Fish farming helps thwart the environmental consequences of depleting wild fisheries, but there's a catch-22. Harvesting the small fry at the bottom of the marine food chain that are needed to feed farmed fish can also shrink wild stocks. AgriProtein founder Jason Drew, a South African who calls himself an "environmental capitalist," came up with a solution while walking past a food-waste dump swarming with flies. Insects have long been used as bait, so why not grow a supply of flies that could serve to feed fish? After all, flies and their maggots will eat almost anything—including organic waste from restaurants and supermarkets.

It took several years of trial and error—turns out that flies don't like to breed on command, or en masse. But now black soldier flies *(pictured here)* at Drew's flagship facility in Cape Town turn some 276 tons of organic waste into 26 tons of pure insect protein a day, which is sold as food to fish farmers as well as the local poultry industry. Last year, AgriProtein partnered with an engineering company to develop a blueprint for rapidly rolling out fly farms, with a goal of reaching 200 around the world by 2027. As the sustainability of our food sources grows more precarious with a burgeoning population, insects are increasingly seen as a viable alternative—both for human and animal consumption. *—Aryn Baker*

WEWORK

REDEFINING THE **OFFICE**

WeWork's vibrant co-working spaces—with their open plans and perks like gourmet coffee and beer—are transforming office culture. The company started out giving startups an instant office. Now clients include corporate giants looking for flexible, millennial-friendly work space. Big spending (like its $850 million purchase of the landmark Lord & Taylor building) has put WeWork on track to become Manhattan's largest office tenant—and has skeptics wondering about a bubble. But the company is so confident, it's branching out into spaces for living (WeLive), wellness (Rise by We) and education (an elementary school dubbed WeGrow).

—Casey Quackenbush

SPOTHERO

EASING **THE PAIN** OF PARKING

Where scores of startups trying to fix the friction-filled business of parking have faltered, seven-year-old SpotHero is expanding. Its app allows users to find and prepay for off-street parking, often at a discount. And after acquiring competitor Parking Panda last year, the Chicago-based firm now boasts access to more than 5,000 garages and lots in the U.S. and Canada. By allowing drivers to reserve a spot rather than circle dense city centers, the company has helped stem congestion and pollution. Now CEO Mark Lawrence is preparing to serve robots as well as humans, working to automate the parking transaction with the future of self-driving cars in mind.

—Katy Steinmetz

BUMBLE

BEYOND BETTER **DATING**

Bumble shook up online dating by addressing women's concerns. On the Bumble app, heterosexual connections must be initiated by women, which supporters say reduces harassment. The approach has paid off: while it still trails industry leader Tinder in downloads, Bumble nearly doubled its users over the past year, now reaching 40 million. (Tinder, which has swapped lawsuits with Bumble, is now testing its own women-message-first feature.) Bumble is expanding beyond dating with Bumble BFF (a way to find friends) and Bumble Bizz (a career network). The goal, CEO Whitney Wolfe Herd has said, is to make Bumble "the world's premier empowerment company."

—Katie Reilly

PELOTON

THE PORTABLE **FITNESS** CLASS

Since the company's founding in 2012, Peloton's at-home workouts have drawn a rabid following. But its approach to fitness has been decidedly luxe: Peloton users must plunk down roughly $2,000 for a stationary bike tricked out with a video screen and Internet connection that lets the rider participate remotely in live and on-demand cycling classes (which cost an additional $39 a month). Now Peloton is making its virtual-class model more broadly accessible. In June it launched the Peloton Digital app. For just under $20 a month, and with no fancy equipment required, the app offers a slew of at-home workouts, such as boot camp and strength training. CEO John Foley believes remote classes have unique appeal—and he isn't shy about his ambitions. "Jeff Bezos has said he wants to make it irresponsible for people to not have an Amazon Prime membership," Foley says. "We're going to make it irresponsible to not have a Peloton membership." *—Jamie Ducharme*

AGRIPROTEIN; PELOTON: BRYAN DERBALLA FOR TIME

BITLAND

Protecting Family Land

In Ghana, the International Monetary Fund estimates that 90% of land is unregistered, meaning people who "own" that land—many of whom have lived and worked on it for generations—have little legal recourse if it's seized or stolen. Bitland uses blockchain technology there to create tamper-proof digital public records to help people prove that their land belongs to them. It now operates in six other African nations plus India and the U.S.

—Billy Perrigo

GW PHARMACEUTICALS

Marijuana Into Medicine

In June, GW Pharmaceuticals' Epidiolex—a purified form of cannabidiol (CBD), a non-high compound—became the first FDA-approved pot-based drug. Taken like cough syrup, it has been shown to reduce the frequency of seizures in people with two rare, severe forms of epilepsy. Next, GW is exploring treatments for multiple sclerosis and more. FDA commissioner Dr. Scott Gottlieb called Epidiolex an "important medical advance."

—Mandy Oaklander

COMMONBOND

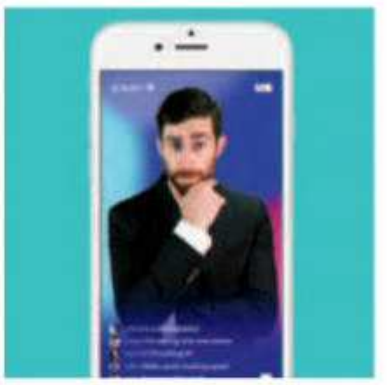
Smarter Student Loans

Americans now owe $1.5 trillion in student loans. CommonBond, using technology to keep costs down, can offer refinancing rates substantially lower than the U.S. government or private banks—sometimes saving borrowers an estimated $24,000 over the life of an average loan. It has also pledged to what it calls a "one-for-one" social mission: for each loan it funds, it pays for a year of education for a child in a developing nation. *—TIME staff*

FENTY BEAUTY

EXPANDING MAKEUP'S PALETTE

In only a year, Fenty Beauty has pulled off a makeover of the makeup industry. Founded by the singer Rihanna *(applying makeup, above)* with luxury-goods giant LVMH's Kendo division, Fenty introduced its first collection last fall. Its much hyped foundation, Pro Filt'r, comes in 40 diverse shades—with the aim of catering to all women, regardless of skin color. Makeup enthusiasts rejoiced, not only over the products but also for how Fenty featured women of color in its advertising. Although some other brands, such as MAC and Make Up for Ever, already sold expansive shade ranges, Fenty's unabashed celebration of inclusivity in its makeup campaigns put an unprecedented spotlight on the need for diverse beauty products. Fenty's success—the brand reportedly made $100 million in sales in its first 40 days on the market and is now available in 29 countries, including Bahrain and Malaysia—sent competitors rushing to expand their own product lines: over the past year several brands have widened their offerings, in what some have termed the "Fenty effect." Now Fenty has expanded into a full-fledged line, offering eye shadow, mascara and lip color in addition to its original offerings. *—Cady Lang*



INTERMEDIA LABS

Million-Player Game Shows

Smartphone entertainment tends to be a solitary activity, but Intermedia Labs blows up that paradigm with HQ Trivia, where players play together in real time. Anchored by adorkable host Scott Rogowsky *(above),* HQ has attracted as many as 2.4 million people at once. Co-founder Rus Yusupov says more live programming is coming. Meanwhile, knockoff trivia competitors have sprung up around the world. "We started as one show," he says. "Now it's a whole genre." *—Thomas E. Weber*

DOMINO'S

Reinventing Pizza Delivery

Fast, reliable pizza delivery? Great. Pizza brought directly to your picnic or softball game? Genius. Domino's new Hotspots cover more than 150,000 outdoor locations that lack traditional street addresses. It's the latest in a series of Domino's innovations that embrace the smartphone-centric lifestyles of millennial pizza consumers—and helped Domino's overtake Pizza Hut last year to become the largest pizza company in the world. *—Megan McCluskey*

FENTY: KEVIN MAZUR—FENTY BEAUTY/GETTY IMAGES; INTERMEDIA LABS; EVERLANE; VOLVO; AMAZON; JOHN BLANDING—THE BOSTON GLOBE/GETTY IMAGES; APEEL SCIENCES; GETTY IMAGES; DOMINO'S; OCULUS; SINGAPORE AIRLINES; NETFLIX; BIRD; FRANCES IACUZZI—BIRD

EVERLANE

Bringing Fairness to Fashion

It started with a simple conceit: quality clothes at a lower markup. But Everlane's real innovation is relentless transparency. For example, customers can learn how a $68 pair of jeans gets made in a Vietnamese factory that recycles its water and turns waste into bricks for homes. Starting from its first T-shirt in 2011, Everlane now sells 333 different items—and says it's on track to double its business this year. Next up: a project for safe, sustainable silk production. *—Raisa Bruner*

VOLVO

A Different Way to Drive

The Swedish automaker is known for safety, but Volvo itself is taking some risks. Care by Volvo is a radical rethinking of vehicle ownership that turns cars into a subscription service. For $650 a month and up, drivers get a new SUV or sedan along with insurance and maintenance. It's aimed at millennials, and despite some early hiccups, fans are now heralding it as a welcome simplification of the car-buying process.

—Alex Fitzpatrick

AMAZON

Always Disrupting

Amazon disrupts nearly everything it tackles, from publishing to retail to cloud computing. Millions now chat away with Amazon's Alexa, asking the voice assistant to play music or remind them of tasks. And in September, Amazon became the second American company (after Apple) to reach $1 trillion in market value. "We didn't ascend from our hunter-gatherer days," CEO Jeff Bezos wrote in a letter to shareholders this April, "by being satisfied." *—Katy Steinmetz*

APEEL SCIENCES

Keeping Fruit Fresh

How is it that so much food is grown and yet 1 in 9 people worldwide doesn't have enough to eat? A big reason is spoilage. Apeel Sciences has developed a way to keep food fresh two to three times longer—by using food. The company turns organic materials like leftover grape pressings from wineries into an invisible, tasteless barrier to keep moisture in and oxygen out. Apeel's longer-lasting avocados debuted in Costco and other stores this year. *—K.S.*

OCULUS

Opening up a Virtual World

Facebook's Oculus unit is nudging virtual reality mainstream. Early VR headsets were expensive and required high-powered computers, appealing mainly to early adopters. But the Oculus Go, which went on sale May 1, is inexpensive, sleek and stand-alone. Users can be up and running in minutes, riding virtual roller coasters or just watching Netflix in an immersive theater. The recently announced Oculus Quest could spur further adoption. *—A.F.*

SINGAPORE AIRLINES

Redefining the Long Haul

Singapore Airlines' new Airbus A380 first-class suites are luxe apartments in the sky, complete with a bed and a 32-inch TV—but even economy passengers get amenities like hot towels, gourmet menu selections and unexpectedly comfortable seats. Such service helped Singapore nab Best Airline in this year's Skytrax awards. One more thing to brag about: the world's longest airline flight, a nearly 19-hour Newark, N.J.–Singapore journey set to begin in October. *—A.F.*

NETFLIX

Bingeing on Success

Netflix launched the streaming revolution and turned viewers into binge watchers. Now it's remaking the way TV shows and movies get made, producing over 1,000 original shows and films. The strategy combines quantity with quality: Netflix received more Emmy nominations this year than HBO, ending the premium cable channel's 17-year streak. To guide its decisions, Netflix uses Big Data, analyzing viewers' binges to predict what will get them to watch in the future. *—Eliana Dockterman*

BIRD

Reimagining Your Commute

Bird is pioneering an alternative to cars for short commutes: electric scooters. Now in about 40 U.S. cities, the Santa Monica, Calif.–based startup provides scooters that you locate through a smartphone app and then park wherever your trip ends. It's controversial, with some locals complaining of scooter-cluttered sidewalks. But Bird estimates that in Santa Monica alone it has prevented more than 1.6 million miles of driving—and the pollution that comes with it. *—K.S.*

OPORTUN

A New Look at Lending

For the 45 million Americans with little or no credit history, Oportun offers an alternative to payday lenders charging triple-digit interest rates. Using other data (like how long a person has had the same job), the firm has lent more than $5.4 billion to people who might be rejected by mainstream banks, at an average APR around 35%. It also reports payments to credit bureaus, opening up borrowing options for many customers. —*Katy Steinmetz*

PINTEREST

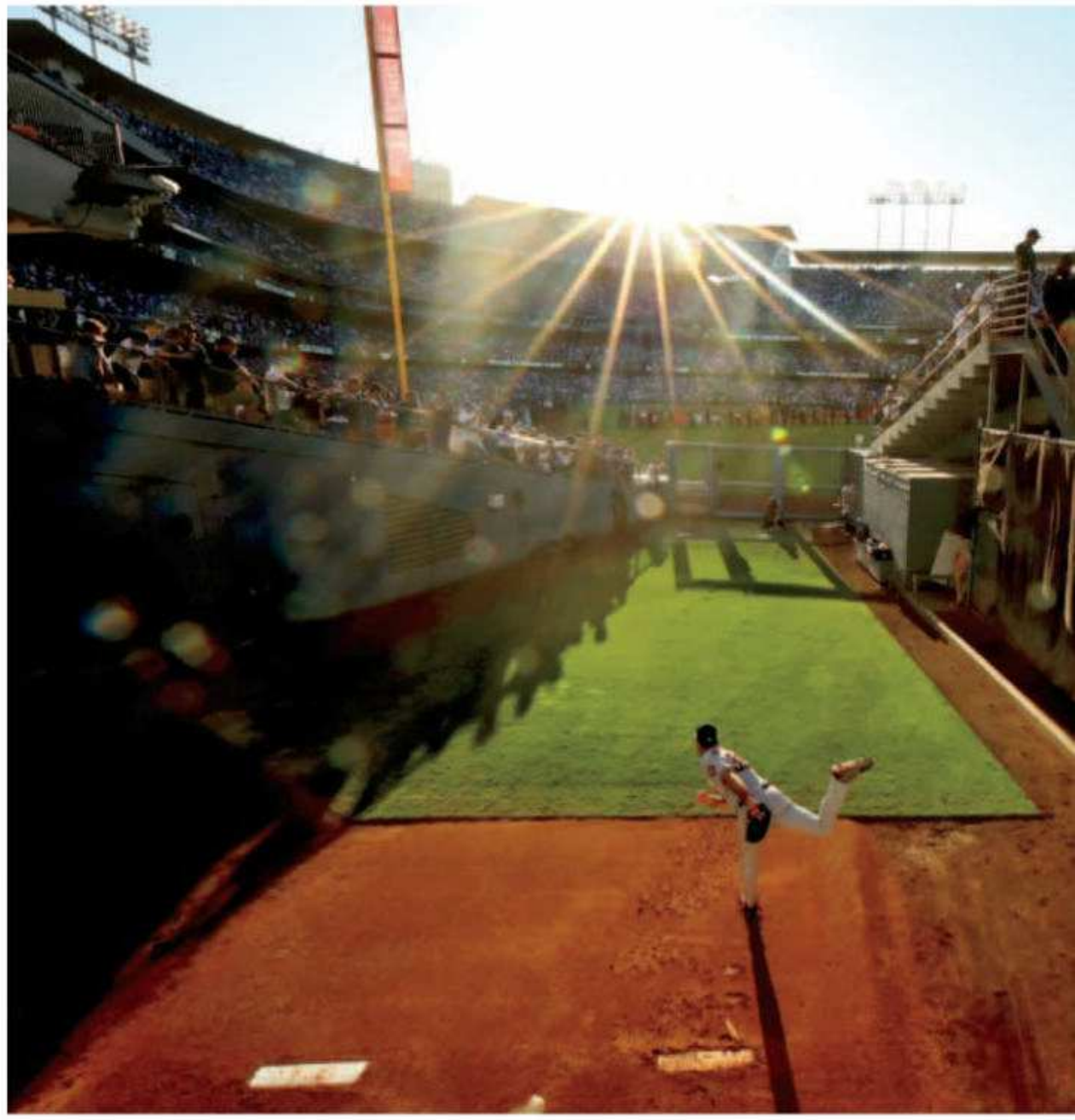
Staying Positive

As other social-media platforms have struggled with image problems, Pinterest has remained a "positive corner of the Internet," as co-founder Evan Sharp says, in part because of visual simplicity. In September, Pinterest announced that 250 million users are "pinning" inspirational pictures of recipes and home decor on virtual, shareable boards. Investors credit the firm's leadership for moving slowly, rather than getting swept up in the obsessive focus on growth common in Big Tech. —*K.S.*

BABYMIGO

A Community for Mothers

About 830 women die each day from preventable causes related to pregnancy and childbirth—99% of them in developing nations. With a $10,000 grant from Google's Launchpad Accelerator Africa, Nigeria's Adeloye Olanrewaju co-founded Babymigo.com to connect mothers-to-be with medical experts, services and other parents. It already has 90,000 registered users. Every mother "is hungry for the kind of information we provide," Olanrewaju says. —*Aryn Baker*



HOUSTON ASTROS

FINDING **NEW WAYS** TO WIN

In pursuit of baseball excellence, the Houston Astros have consistently turned to risky innovations—and wound up changing the entire game.

For starters, the team hired a former NASA engineer as Major League Baseball's first "director of decision sciences." Then the Astros started positioning fielders where data predicted they'd actually catch the ball (instead of in conventional spots). Now, in big-league ballparks across the country, defensive shifts—in which, for example, a third baseman might be moved to the right side of second base, leaving half the infield open—are as common as spitting. When Houston clinched its first-ever World Series last fall, it was on a groundout into the shift.

Baseball's smartest team doesn't just rely on number crunching. President of baseball operations and GM Jeff Luhnow—a former McKinsey consultant who directed the team's transformation into a

champion after it lost at least 100 games each season from 2011 to 2013—selected shortstop Carlos Correa with the top pick in the 2012 draft based on his drive, even though numbers indicated the team should do otherwise. (Correa won the 2015 Rookie of the Year award and made an All-Star team.) But Houston, which reached the postseason again, will keep investing in AI to maintain an edge. "What we're all trying to grapple with," says Luhnow, "is how to use computing power to get smarter and smarter." It's a whole new ball game. —*Sean Gregory*

HOUSTON ASTROS: EZRA SHAW—GETTY IMAGES; LOCKHEED MARTIN: NOAA

AIRBNB

Evolving Hotel Alternatives

Critics have said the biggest disrupter in hospitality contributes to housing shortages and flouts zoning laws. But 10 years after its founding, travelers have used Airbnb to find a place to stay 300 million times, renting everything from spare rooms to tree houses from private owners. The company has also gotten better at navigating controversy, reaching deals with regulators and collecting taxes to replace those tourists pay at hotels. —*K.S.*

AIDOC

Saving Lives Faster

By analyzing medical imaging to spot abnormalities at high speed, Aidoc aims to relieve the thrombosis in medical data—projected to total 2.3 trillion gigabytes by 2020. To date, Aidoc's software has scoured nearly 260,000 images, saving 50,000 hours of human work, which CEO Elad Walach says will "really impact patient outcomes." In August it was given FDA approval to scan for brain hemorrhages in a first for radiology AI. —*Eli Meixler*

BRCK

Getting Africa Online

With a portable modem that uses SIM cards to beam wi-fi to multiple devices, BRCK revolutionized Internet access in Africa. Now the Nairobi company offers a SupaBRCK that provides connectivity to up to 100 devices at a time. But it has even bigger things in mind: Moja is a public wi-fi system that uses SupaBRCK hardware to provide free Internet access across Kenya and Rwanda. Hopefully the rest of the continent will follow. —*A.B.*

LOCKHEED MARTIN

GIVING **EARTH** ITS CLOSEUP

Lockheed Martin is known for massive defense projects like the F-35 fighter jet. But it's also changing how we understand Earth's climate with next-generation weather satellites built for NASA and NOAA. The first of these, known as GOES-16, went into official service last December. Part of a $10.8 billion program, it beams down images *(like Hurricane Florence on Sept. 12, below)* with four times the resolution of its predecessor. It can detect wildfires to help direct first responders and includes the Geostationary Lightning Mapper, which can spot lightning even during daylight—promising to improve tornado warning times. Startup culture preaches "fail fast," but satellites, which take years to design and build, are a different challenge. "We have to imagine future needs and meet them," says Tim Gasparrini, the Lockheed executive for GOES. A sister satellite, GOES-17, blasted off in March. Its imager has been partly hampered by a cooling-system problem, and engineers are trying out workarounds. But both spacecraft transmit remarkable images around the clock—providing perspective from space for better decisions here on Earth. —*Thomas E. Weber*

Unlocking the body's defenses

New discoveries are mobilizing the immune system in the fight against breast cancer

By Alice Park

Kathy James, a pharmacist, at the Englewood, Fla., clinic she and her husband founded to provide medical care to the community

PHOTOGRAPH BY ZACK WITTMAN FOR TIME

AS A PHARMACIST, KATHY JAMES CONSIDERS HERself well educated about the importance of getting regular cancer screenings. Even though the 55-year-old had no history of cancer in her family, she never skipped her regular mammograms, and she gave herself regular breast exams. So she was dumbfounded when, during one of those self-exams in May 2017, she felt a marble-size lump in her left breast. A visit to the doctor confirmed it. "The radiologist came in with his hands in his pockets and looked down and said, 'It doesn't look good,'" James says. After a biopsy, James and her husband learned she had metastatic breast cancer. It was their 26th wedding anniversary.

James immediately wanted to have both breasts surgically removed, which she believed would drastically reduce the chance that the cancer would spread. "I wanted to be done with it all," she says. "I was hell-bent on getting the double mastectomy."

If James had been diagnosed even five years earlier, she likely would have gone through with the radical surgery, even though it would not have guaranteed her cancer would not spread, or return. A friend who is a cancer doctor advised her against getting the surgery and referred her to Dr. Brian Czerniecki at Moffitt Cancer Center, who told her about a pioneering study he was conducting to test a completely new way of fighting breast cancer—not solely with chemotherapy, radiation or surgery but by harnessing the power of her own immune system. The study and dozens of others like it are potentially rewriting the manual for breast-cancer care, giving patients unprecedented options for controlling their disease and possibly even curing it.

The immune system mounts the body's defense and offense against unwanted intrusions: bacteria, viruses and even cancer cells. Cancer, however, poses a tricky problem. Malignant cells develop from normal cells that start to grow out of control, and the immune system is specifically programmed not to attack the body's own cells.

But scientists have found ways to retrain the body to recognize and destroy tumor cells, making immune-based treatments the newest, most promising weapon against many types of cancer. The first of these immunotherapy drugs approved to treat cancer began in the labs of James Allison of MD Anderson Cancer Center and Dr. Tasuku Honjo of Kyoto

University in the 1990s. They independently discovered different ways in which the immune system is blocked from attacking tumor cells, which just earned them the 2018 Nobel Prize in Physiology or Medicine. Their finding led to a new class of drugs, called checkpoint inhibitors, that allow the immune system to see cancer cells as the disease-causing rogues they are and attack them, drastically improving remission rates. In the past five years, the Food and Drug Administration (FDA) has approved a dozen new cancer drugs and therapies that exploit the immune system. "All cancer patients will likely receive [immunotherapy] in five years, so it's going to be curative for a lot of them," Allison says.

Immunotherapy treatments are especially effective against lung cancer, skin cancer and blood cancers like leukemia and lymphoma. But immune-based treatments have not been as successful, or as plentiful, for the most common cancers: colon, prostate and especially breast. Of the more than 600,000 people who died of cancer in the U.S. in the past year, the vast majority had these types of solid tumors. The problem, says Dr. Robert Vonderheide, director of the Abramson Cancer Center at the University of Pennsylvania, is that "most breast cancers fit into a category we call 'cold' immunological tumors, meaning the tumor has the ability to either exclude the immune system or hide from it altogether. That kind of cancer isn't easily treated with current immunotherapies."

At least not yet. Building on the foundation that Allison and Honjo established with checkpoint inhibitors, researchers are finding creative ways to stimulate the immune system to see tumors like breast cancer as "hot" rather than "cold" targets, in the same way infectious-disease bugs like measles or influenza viruses flag a response. They are accomplishing this by learning from successful treatments for diseases like tuberculosis and HIV, which combine therapies; against cancer, they match immune-based treatments with more traditional ones like chemotherapy, surgery or radiation to boost whatever immune response there is. While chemotherapy and radiation in their current forms destroy immune cells along with malignant ones, modified formulas may be just enough to stimulate an inflammatory response that awakens the immune system to see tumor cells. Breast-cancer researchers are testing ways to then deploy immunotherapy drugs like checkpoint inhibitors to elicit the strongest immune response against tumors.

James was intrigued by the idea of training her body to fight her cancer as a more sustainable solution than short-term cycles of chemotherapy or radiation alone. "Because my cancer tends to recur, and because it's aggressive, I couldn't just stop once my year of treatment was up," she says. "I needed to keep going." And now, for patients like her, more creative ways to prime the immune system against cancer are starting to emerge. At the National Cancer Institute, Dr. Steven Rosenberg, chief of surgery, studies the mutations that drive his patients' breast cancer, isolates the few immune cells that are trying to fight the cancerous cells, amplifies their numbers in the lab and infuses them back into his patients. He's convinced that the strategy could become the blueprint for translating the same success that immunotherapies have had in blood, lung and skin cancers to the more common malignancies in the breast, prostate and colon.

12

Number of immune-based treatments approved in the U.S. for cancers including melanoma, lung and blood cancers

0

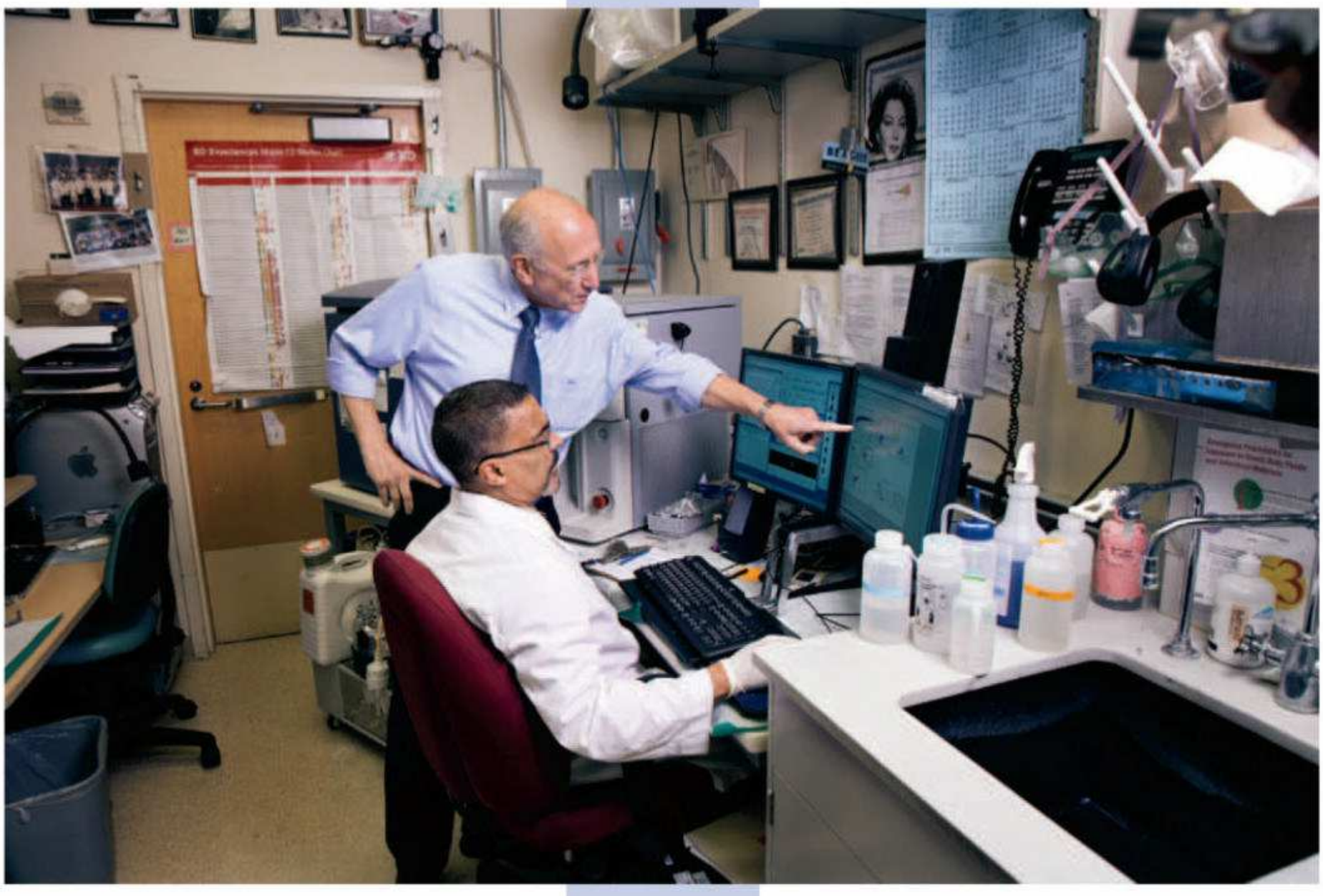
Number of immune-based treatments approved in the U.S. specifically for breast cancer

THERE'S A REASON doctors focused their first immunotherapy efforts on cancers like melanoma and lung. These diseases tend to emerge because cells build up many mutations, or mistakes in their DNA, that instruct them to start growing abnormally and out of control. Normally, mutations make a cancer difficult to treat, because they allow the cancer to form new ways to dodge treatments launched against it. But when it comes to making immunotherapies work, they're a definite plus. In the 1980s, Rosenberg became among the first to notice that those mutations also attract the attention of the immune system, and some immune cells can start infiltrating the tumors.

At the time, Rosenberg says, "nobody knew there was an immune response against human cancers." He decided to try to use it to his advantage and eventually developed a way to isolate these cancer-fighting immune cells, known as T cells, from 195 people with melanoma, expanding their numbers and infusing them back to the patients. So far, 30% of them have responded completely to the therapy, meaning their existing cancer cells disappeared and they have not seen any tumors reappear in nearly seven years since the treatment.

Encouraged by that show of immunological force, doctors began exploring ways to exploit the immune system to treat other cancers. Leukemias and lymphomas, which form when blood cells turn malignant, can't be treated with surgery and tend to recur even after chemotherapy and radiation. But they are particularly amenable to a type of immune therapy that involves replacing a patient's malignant blood with a population of their T cells that are processed to attack a receptor common among cancerous blood cells. Up to 90% of people with certain types of leukemia whose cancer recurred after repeated cycles of standard treatments have gone into remission after receiving this form of immunotherapy. Such success led the FDA to approve the first immune-cell-based therapy, called CAR T, for a type of leukemia and other blood cancers in 2017.

But solid cancers—which are much more common—have fewer mutations, and the tissues they invade (like those in the breast) can't be replaced as blood cells can, making immunotherapy



JESSE DITTMAR—REDUX

more difficult. Vonderheide has found that of the 7,000 tumors listed in a national genetic database, breast cancers fell in the bottom 25% of tumors when it came to how many mutations they carried. Because of that, breast cancers are also part of the bottom half of all cancers when it comes to immune responses the body generates against them. "Breast cancer notoriously shields itself from the immune system," he says.

Now Rosenberg is exploring ways to unlock breast cancer to the possibilities of immunotherapy. Building on his early work with T cell responses to cancer, he designed an experimental therapy customized to each patient's cancer and tested it first in people with liver, colon and cervical cancer. The first breast-cancer patient in his study, Judy Perkins, had Stage IV cancer that had recurred and spread to lumps in her chest and to her liver, despite a dozen chemotherapy and hormone treatments and even a mastectomy. Tapping into the growing knowledge of how genes drive cancer, Rosenberg did a thorough genetic analysis of her tumor and found 62 major mutations responsible for turning Perkins' cells malignant. He then searched for the valiant few immune cells that could recognize and attack four of those genetic aberrations and were already battling her cancer. He extracted those immune cells, grew them in larger numbers in the lab and returned them to Perkins via IV as an immune-based treatment against her breast cancer.

Having exhausted all of her treatment options, Perkins had said her goodbyes to loved ones and was "waiting for the end," she says. But within a month of receiving the onetime infusion of cells, she felt the tumor in her chest get "softer and smaller." Within two months, the tennis-ball-size growth in her liver had disappeared and the tumor in her chest had also shriveled to nothing. Nearly three years later, doctors say she is in a durable regression. "I am totally thrilled. It's awesome," she says. But Perkins knows for now she's an exception. So far, only 14% of the 42 people Rosenberg has treated have responded as Perkins has. Rosenberg believes that percentage will increase if he and others find better ways to pinpoint both the mutations behind each patient's cancer and the population of immune cells targeted against them. As that science evolves, it could bring immunotherapy to not just those with breast cancer but those with other solid tumors as well. "This could basically be a blueprint for the treatment of any cancer type," he says. "And I frankly think that it's got a good chance of working."

Dr. Steven Rosenberg, one of the pioneers of immunotherapy, in his labs at the National Cancer Institute

12%

A U.S. woman's average risk for developing breast cancer at some point during her life

THERE ARE LIMITS. Rosenberg's method of immunotherapy is a time-consuming and expensive treatment, and since it requires a customized approach, it can't be mass-produced as a universal, off-the shelf procedure for any patient. There need to be other ways to tap into an immune response—which is why Czerniecki is testing possible "vaccines" in James and other patients that would search for and destroy cancer cells before they recur as tumors.

James' breast cancer is HER2-positive, named for the protein that dominates her cancer cells—a protein that initially attracts an immune response but then loses it over time. Czerniecki created a vaccine that stimulates that response again. "We're trying to restore some of the immune responses that get knocked out or dampened over time," he says.

It's helpful, but not enough in James' case. As the disease progresses, cancer cells actively shield themselves from the immune system by blanketing themselves in proteins that are found in abundance on neighboring healthy cells, so targeting the cancer cells can also kill normal ones. "With invasive tumors, we have to play with their environment, because it has become almost like a wall to the immune system that we've got to penetrate," Czerniecki says.

One way to accomplish that, ironically, is to enlist the help of older methods of treating breast cancer. At Penn, Vonderheide is experimenting with ways to combine newer immunotherapy drugs with conventional treatments like chemotherapy and radiation with the hope that the synergistic effect will make tumors more visible and vulnerable to immune attack. The idea, Nobel Prize winner Allison says, is to "turn radiation and chemo into a sort of vaccine."

The key is not using standard cycles of chemo or radiation, but tweaking the treatments so they are just right for activating an immune response. Too much chemo or radiation suppresses the immune system, but just enough can act like a stimulant to activate it. "It's almost as if chemotherapy can roughen up the surface of cancer cells and get the [proteins] released that attract the immune system," says Dr. Peter Schmid, clinical director of the breast-cancer center at the St. Bartholomew Cancer Centre in London.

Schmid will announce much anticipated results at the end of October from a study that combines a chemotherapy agent combined with a checkpoint inhibitor for treating advanced triple-negative breast cancer, an aggressive, difficult-to-treat form of the disease. The chemo is delivered in nanoparticle form, which makes it more soluble and better equipped to slip inside cell membranes to activate an immune response. "Patients ask me every day, 'Why do I need chemotherapy? Won't it bring my immune system down?'" Schmid says. "We are only just understanding that it can have a more subtle and positive effect on immunity against cancer."

There is similar excitement over combining shorter schedules of radiation with checkpoint inhibitors. This approach shows even more promise as a way to target tumors that have spread to hard-to-reach tissues—a common issue with breast cancer. Researchers believe that's because radiation given over a few days rather than over the standard weeks-long schedule may be enough to trigger an immune response against a specific tumor, which is then directed to attack tumor cells in other parts of the body. In the case of breast cancer, researchers hope that this response will find growths that have spread beyond the breast and target those. This new thinking, Allison says, is "really disruptive, because we're realizing with chemo and radiation that we don't need to kill every last tumor cell, but stir up things just enough for the immune system to take them out."

Studies like the one in which James is participating could also overturn the current thinking about how to treat one of the stubborn challenges of breast cancer—recurring tumors. If vaccines designed to awaken immune cells against cancer are effective, then breast-cancer patients could potentially be protected from having their cancer return with periodic anticancer "booster" shots. Their immune systems would essentially be primed to find and eliminate any cancer cells before they can coalesce into tumors.

James and Perkins are hopeful that their participation will speed immune-based treatments into regular rotation for future breast-cancer patients. James received six inoculations of her cancer-fighting immune cells over the summer and is scheduled to receive three boosters beginning in January. "I can't change the fact that I have breast cancer, but I can pay it forward by being part of a clinical trial in the hopes that there will be a vaccine my children and grandchildren will get, so they wouldn't have to endure what I went through," she says. Perkins just wants her miraculous case to become the routine rather than the exception. "The immune system has such potential, and we are just starting to crack this door open," she says. "I'm hoping that door will open all the way and we have more effective treatments. I would like some company in being the golden guinea pig." ☐

SCOTT MCINTYRE—THE WASHINGTON POST/GETTY IMAGES

▲ *Judy Perkins' Stage IV breast cancer shrank after an experimental immune treatment*

40,000

Number of women who are expected to die from breast cancer in the U.S. this year

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Time Off

FAMILY AFFAIR Steve Carell and Timothée Chalamet play a father and son divided by addiction in *Beautiful Boy*

INSIDE

THE CREATOR OF MAD MEN *COMES TO AMAZON WITH AN AMBITIOUS NEW SHOW*

PREGNANCY PROVES A FERTILE TOPIC IN THE NETFLIX MOVIE PRIVATE LIFE

ANGER IS ALL THE RAGE IN THREE NEW BOOKS BY FEMALE AUTHORS

PHOTOGRAPH BY MARK MAHANEY FOR TIME

MOVIES

Putting a painfully real face on addiction

By Sam Lansky

STEVE CARELL IS A LITTLE NERVOUS TO TALK about his new movie. Well, not nervous, exactly—maybe it's more that he's cautious. He's not sure he's the best person to speak on the subjects at hand, and if he's going to, he wants to get the words just right. "Talking about the movie is almost as daunting as doing the movie," Carell says. "You don't want to speak as if you're an authority."

The movie is *Beautiful Boy,* out Oct. 12. It's an adaptation of two memoirs. One was by a father, veteran journalist David Sheff, who wrote a book by the same name, about trying to guide his son through a harrowing drug addiction. The second book, *Tweak,* was by David's son Nic; in it, he tells the firsthand story of his descent into addiction and efforts at recovery. Released simultaneously, both books became best sellers, and rightly so: taken together, they show the full scope of how drugs affect not only the addicted but their loved ones too: a 360-degree view of addiction as a family disease.

The movie, directed by Belgian filmmaker Felix Van Groeningen, synthesizes the two stories, with Carell as the embattled father trying to save his son, and Timothée Chalamet as the charismatic and manipulative young man who doesn't know how to be saved.

Today the three of us are at Carell's house in Los Angeles. Carell went out early to pick up breakfast for us and we're sitting in a circle, drinking coffee and sharing with one another, which lends the interview the precocious intimacy of a 12-step meeting. When I talk about my own struggles with addiction as a teenager and eventual recovery, they both listen intently. They care deeply about whether someone who's been through some of what this movie documents thinks they got it right. "When we were doing it, it felt like we were doing something real," Chalamet says. "Not in the clichéd actor sense. But in a real sense."

Addiction is very real to legions of people: approximately 20 million Americans meet the criteria for a substance-use disorder, and an estimated 72,000 Americans died from drug overdoses in 2017, a twofold increase in a decade as the opioid epidemic worsened. From 2010 to 2015, the number of drug-overdose deaths involving psychostimulants such as methamphetamine, a drug the real Nic used along with opiates like heroin, more than doubled. In one of *Beautiful Boy*'s most affecting scenes, David goes to see an addiction specialist (Timothy Hutton) to ask him for advice. As the doctor lays out the facts about how drugs affect the brain, it becomes clear that he's not really offering options for treatment—he's breaking the news to a father that his son's chances at recovery aren't high.

Nic (Chalamet) is consoled by his mother (Amy Ryan)

Yet, though you're hard-pressed to find someone whose life hasn't been impacted by it in some way, addiction remains misunderstood, sensitive and cloaked in secrecy—which is part of what drew both actors to the material. "We talk about drug abuse as a moral failing," Chalamet says. "For us, that's a hope for the movie: that it starts a conversation to see it not as a taboo."

Beautiful Boy also manages to do something that most stories about addiction, with their typical arcs of redemption and sobriety, don't dare to do: it gets a little frustrating. Nic's relapses feel inexplicable. David wrings his hands with escalating helplessness. It hits the same notes repeatedly. But this helps the film actually get at the mysteries of addiction and why treating it remains so challenging: Who can really say why addicts, particularly privileged ones like Nic with a loving family and access to top-notch re-

sources, begin using again even after periods of remission? How can anyone who loves someone struggling with addiction possibly help them? The movie doesn't try to solve the impossible why of the addiction epidemic—but it does provide a compelling snapshot of what makes it so heartbreaking and confounding. "In my understanding, that's the reality of addiction," Chalamet says. "It's one day at a time. You've never really won the fight."

HE'S RIGHT. That is the reality of addiction, and it hit home for me as I watched the film and reflected on my own teenage years. The way Nic used drugs was familiar to me, but the way David tried to help him—I had never seen that before onscreen, not that convincingly. I thought about my own father, who had to put me through rehab more than once, and I felt embarrassed: not only for how impossible I'd been, but also for how little I'd been able to understand how it had affected him.

Carell gets that. As a parent, he says, he could imagine the horror, rendered so vividly on film, of feeling like you're losing your child in real time. "Being a dad, there's an inherent worry you have as soon as you have kids that never goes away," Carell says. "To experience them spiraling out of control with absolutely no recourse …" He trails off. "David was mourning his son while his son was still alive." (The real Nic is now sober and a successful TV writer and producer; he worked on the Netflix series *13 Reasons Why.*)

In the film, there's a scene where David and Nic go surfing together; Nic dips under a wave, and for a moment, David thinks his son is gone. It's a moment familiar to any parent, but especially harrowing to one dealing with forces as strong as tides.

Chalamet connected to the themes of the movie too. Growing up in New York City, he says, he had a lot of friends struggling with addiction and pursuing recovery when they were, like Nic, still young. He's unhappy with the way drug use has become, as he puts it, "masochistically glorified" in popular culture: "Young people have such disillusionment with our post-post-post-industrial world, where student debt is crazy and job opportunities are less afforded to people," he says. "Opiates have become the drug of choice, as opposed to drugs in the '60s like LSD that amplified your surroundings—these are drugs that will numb you regardless of how terrible your environment is, and you're guaranteed the same feeling each time." Disappearing into this role was edifying, he says—it helped him see drug use as a process of seeking relief more than getting high. "There's a misconception that addicts are using with a great amount of euphoria," Chalamet says, "when in reality, they're just keeping up a feeling, or avoiding reality."

'Being a dad, there's an inherent worry you have as soon as you have kids that never goes away.'

STEVE CARELL

DESPITE THE HEAVINESS of the material, our conversation has lighter moments. We talk for a while about *The Office,* Carell's long-running NBC sitcom, of which Chalamet is a superfan. Carell recounts it lovingly but volunteers that he's disinclined to appear in a reboot. "I've never thought it was a good idea," he says. "I love it too much to ever want to do it again." But Chalamet says his own iconic role, as Elio in last year's cult hit *Call Me by Your Name,* will likely get a reprise. "I was just on the phone with Armie [Hammer] 30 minutes ago discussing it," Chalamet says. "I think André [Aciman, the author of the novel *Call Me by Your Name*] is comfortable with a sequel being made. I know Luca [Guadagnino, the film's director] really wants it. And I know Armie and I are 1,000% in."

But we keep circling back to this same point: how hard it is to talk about this movie and the things in it, this movie that does such a fine job at showing how addiction shatters families, it almost spooks you into reverent silence. "Clearly it's important to us, or else we wouldn't have done it," Carell says. "But when you get the question 'Why should people see this film?' how do you even respond to that? Because it's compelling and emotionally resonant?"

"People are bracing for a really difficult ending," Chalamet says. "Or something that ends with a flourish—a montage of hope or something. But this is just scene after scene where we tried to do it as diligently as possible." He's trying to get at something important here: the lack of resolution, the fragility of recovery, the impossibility of fixing it.

So of course it's hard to talk about: because when you talk about addiction, there are, maddeningly, no satisfying answers. And even I, after many years clean and sober, never know exactly what to say about it. Which is both the challenge and the triumph of the film: it's not a movie that claims, Hollywood ending and all, that the love of a parent is enough to save a sick kid. But it's a powerful reminder that it's worth trying.

And on the way home, I call my dad. ☐

AMAZON

Mother Russia: Eckhart caters to Keller's every whim

TELEVISION

Life as Russian novel in *The Romanoffs*

By Judy Berman

IN THE ANNALS OF HISTORY, THE name Romanoff is written in blood. Russia's last czar and his family were assassinated in 1918, and their story is retold in the pitch black opening sequence of *Mad Men* creator Matthew Weiner's new Amazon show, *The Romanoffs*. Yet one girl, presumably the storied Anastasia, escapes—and emerges from a subway, smartphone in hand. The perverse soundtrack: Tom Petty's "Refugee."

A historical drama about the last days of a dynasty might've been a worthy project for Weiner, one of several powerful men who've faced accusations of sexual misconduct and emerged with career intact. But *The Romanoffs* is actually a madcap anthology series about contemporary characters who claim to be descendants of the family. In the premiere, elderly Anushka (Marthe Keller) languishes in a palatial Paris apartment full of Russian artifacts, while her nephew (Aaron Eckhart) waits for her to die and leave it to him.

Each 90-minute installment feels like a stand-alone movie, allowing Weiner to test out multiple genres: domestic drama, romantic comedy and, in the best of the three episodes provided for review, a psychological thriller starring Christina Hendricks and Isabelle Huppert. Other big names (Diane Lane, Amanda Peet, Noah Wyle) and *Mad Men* alums (John Slattery, Cara Buono) join talented newcomers in the enormous cast; Inès Melab steals the first episode as Anushka's caregiver. (Two episodes begin streaming on Oct. 12, with the rest appearing one at a time on subsequent Fridays.)

At times, the show seems to be riffing on epic 19th century Russian novels, throwing characters driven by unruly emotions into story lines steeped in infidelity, murder and conspiracy. It can be disorienting to watch everyday problems reach such operatic climaxes, but these crazy final acts are more often sublime than irritating. And yet even the best of these stories feel somehow incomplete. The characters are compelling but not quite multidimensional. The resolutions can leave you wondering, "So what?"

Yet none of this makes the show's stellar performances, sharp dialogue and lush sets any less pleasurable to take in. Will *The Romanoffs* cohere on a thematic level? We won't know until it's over, but Weiner certainly has a knack for memorable finales. ◻

MOVIES

Babymaking blues

THE IDEA OF TWO PEOPLE coming together to create new life is wonderful—until it becomes a mania that drives them apart. That's the ground writer-director Tamara Jenkins covers in Netflix's *Private Life:* Kathryn Hahn and Paul Giamatti play Rachel and Richard, a middle-aged New York couple striving, and failing, to make a baby, even after several intense (and costly) rounds of fertility treatments. In desperation, they enlist a family friend (Kayli Carter) as an egg donor, triggering a complicated emotional entanglement and a harsh reckoning.

Jenkins *(The Savages, Slums of Beverly Hills)* finds dark striations of humor in an experience that's largely unfunny. Scrolling through a site filled with photos of cheerful-looking egg donors, Rachel observes drily, "It's like eBay for ova." In their pursuit of procreation, Rachel and Richard are at times destructively sharp with each other, though thankfully, Jenkins ends their story in a place of tender accord. Even so, getting there hurts—just like a shot in the stomach.

—STEPHANIE ZACHAREK

Hahn finds laughs in big letdowns

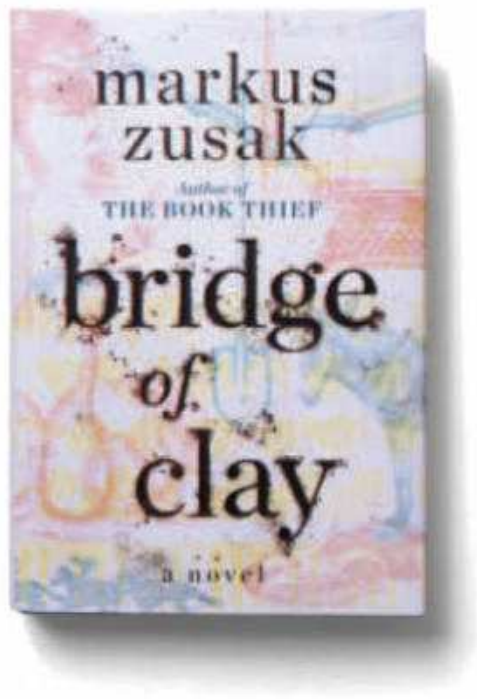
THE ROMANOFFS: AMAZON; PRIVATE LIFE: NETFLIX

BOOKS

A bridge to brotherhood

By Megan McCluskey

GROWING UP IN AUSTRALIA, MARKUS Zusak would ask his mother and father—post–World War II immigrants hailing from Germany and Austria, respectively—to tell him the same stories about their lives over and over. Zusak's own stories have been in print since his first novel, *The Underdog,* was published in 1999. But it was his 2005 global YA hit, *The Book Thief,* inspired by threads of those family tales, that made him a literary sensation. "Sure, we're made of biological, physical things, but what really makes us is our stories," says the author, 43, speaking on the phone from his home in Sydney. "If you took our stories away from us, there wouldn't be much left."



In *Bridge of Clay,* Zusak's sixth book, it's stories that bind the five rowdy Dunbar brothers together in the wake of devastating loss. Their mother, who escaped the East bloc (a nod to the histories of Zusak's in-laws), is dead. Their father has abandoned them. In a complex narrative that leaps through time and place and across oceans, Zusak paints a vivid portrait of the brothers trying to regain their balance by keeping their family's story alive.

At the center of the novel is Clay, the fourth brother and the only one who agrees when their father suddenly returns one scorching Australian summer to ask for help building a bridge over a dry riverbed in the country. To Clay, the bridge represents an opportunity to rebuild his family and to atone for the mysterious role he played in its tragedies. For Zusak, Clay's efforts were a metaphor for how he himself thinks about writing—as an endeavor that must be made, no matter how it turns out. "You always want to make something beautiful and perfect," he says, "but even before you begin, you know that you have to do it anyway."

Bridge of Clay is Zusak's first release since *The Book Thief,* which sold 16 million copies worldwide and was made into a film starring Geoffrey Rush and Emily Watson in 2013. That novel's massive success raised the stakes for his next book. "The door opens really wide when something like that happens. All this light comes through," he says. "But a bit of darkness comes through as well."

Zusak came up with the idea for the story in *Bridge of Clay* more than 20 years ago but didn't start writing until after he published *The Book Thief.* He spent more than a decade drafting and rewriting *Bridge of Clay;* for six years, it was narrated by a character whom the author eventually cut completely from the story. But certain fundamentals were in place from the start. The Dunbar brothers were always a rough-and-tough bunch, prone to expressing themselves through physical violence—a depiction of masculinity that has increasingly come under the cultural microscope. "You spend 13 years working on a book," Zusak says, "and in that time, you change and the world changes."

Bridge of Clay doesn't shy away from the ways in which young men can be brutal, but it's ultimately hopeful. "I wanted the brothers to have moments of beauty, love and loyalty—but I also wanted to show those rougher edges," he says. "I wanted to write boys both in the way that they are and in the way that we would like for them to be." □

BOOKS

Mad as hell: the power of women's rage in 2018

By Stephanie Zacharek

IF YOU WAKE UP AT 7 A.M., YOU'LL PROBABLY START FEELING IT around 7:03, or at least as soon as you check your preferred news source. You don't have to be a woman to find something to be angry about. But if you *are* a woman, chances are you're feeling so much rage that there simply aren't enough hours in the day to contain it all: A government that's working hard to strip women of their reproductive rights, as well as limiting our access to basic health care. Work environments where men guilty of sexual abuse or harassment, or even possibly rape, can still gain power rather than lose it, even as women working in the tiers below struggle just to get by while likely making less money than their male peers do. A country where a resurgence of white supremacy proves that for many, black lives *don't* matter. In 2018, no one needs to ask a woman, "Why are you so angry?" She's an anomaly if she's not.

It says something that not one, not two but three books dealing specifically with women's anger are popping over the ridge of this embattled landscape this fall. Soraya Chemaly's *Rage Becomes Her: The Power of Women's Anger* (out now), Rebecca Traister's *Good and Mad: The Revolutionary Power of Women's Anger* (out now) and Gemma Hartley's *Fed Up: Emotional Labor, Women and the Way Forward* (Nov. 13) constitute a mini-revolution in themselves. Though each of these writers takes a markedly different approach, all three tackle the same core idea: channeled constructively, women's anger is a potent tool for change.

Hartley's book is the one most attuned to women's everyday stresses: *Fed Up* focuses on the largely invisible yet draining multitudinous tasks, collected under the umbrella term *emotional labor,* that women perform daily just to keep their family and work lives moving along. "We can have the family and the career," writes Hartley, who is married and has three children. "In theory, it sounds like the best of both worlds, but in

reality, having it all means having entirely too much on your plate." *Fed Up* asserts that emotional labor, too often considered "women's work," is also damn hard work.

Traister's conscientiously researched *Good and Mad* takes a more macro view of women's rage: this book, in Traister's words, "is about the specific nexus of women's anger and American *politics,* about how the particular dissatisfactions and resentments of America's women have often ignited movements for social change and progress."

Traister specializes in writing about feminism and politics. *Good and Mad* stresses the galvanizing effect that Hillary Clinton's 2016 loss—to a bully who has shown little but contempt for women—has had on American women of all ages, inspiring some who have never before been politically motivated to run for office. Traister is especially astute in emphasizing the ways in which black women laid the cornerstones for women's activism in this country. Long before Betty Friedan's *Feminine Mystique* jolted suburban white women out of their somnambulance, black women—like Sojourner Truth and Rosa Parks, to name just two—had fought hard for progressive causes.

Feminism forces certain complexities into the stream of our daily lives, and Traister has a great gift for articulating them. "Women, unlike many racial, ethnic or religious groups in the United States, are not an oppressed minority, but rather a majority population, integral to homes, families, personal and professional networks in every geographic, religious, racial and ethnic category," she writes. Men and women must exist side by side, whether we do so gladly or with reluctance. But our very dependence on men has also granted them disproportionate power over us—a reality, Traister writes, that "has often kept women paralyzed—by fear, risk, love, loyalty—and reluctant to push back angrily against their own ill treatment, or in response to the ill treatment of other women." See Christine Blasey Ford, who bravely—yet gently—spoke her truth in the Senate hearings surrounding Brett Kavanaugh's Supreme Court nomination.

THE POINT IS THAT within our anger, solidarity is key, even if it isn't always easy. Chemaly's *Rage Becomes Her* is the liveliest and most inviting of these three books, a work of great spirit and verve even when she's dealing with difficult subjects. In a section addressing the frequency of sexual assault in this country—there's one every two minutes, she writes, and the vast majority of targets are women—Chemaly ponders the bizarre criteria some of our government leaders apply to sex crimes. "Conservatives like to debate rape statistics," she writes, "which has always made me wonder, what is their Goldilocks number? What exact number of rapes is not too high, not too low, but just right?" If you're a woman, you may start reading *Rage Becomes Her*—or, really, any of these three books—thinking you're only medium-angry about stuff. By the end, your catalog of outrage will be bursting at the seams. (There's still a tax on tampons? Really?) There are days when we feel punished just for being women. Boldness, distilled from our anger and laced with a sense of humor, is the only solution. Forward march. ☐

'As women, we are continuously told to live in the cracks of a world shaped by and for men.'

SORAYA CHEMALY

Oscar Mayer

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Wellness means more than weight loss

By Jamie Ducharme

LAST MONTH, WEIGHT WATCHERS slimmed its name down to just two letters: WW. America's top weight-loss company is now prioritizing "wellness" instead of focusing solely on the number on the scale, emphasizing everything from physical activity to mindfulness and mental health—not only diet.

"If we want to be people's partners in what healthy means to them, it has to be about more than just weight," says Mindy Grossman, CEO of WW. "It has to be a total approach to how they can live their healthiest, best lives."

The rebranding reflects America's growing distaste for dieting. About 31% of adults said they were on a diet in 1991, but only about 22% said they were in 2018, according to the market-research company NPD Group. A $3.7 trillion global wellness industry and the rise of body positivity and acceptance seem to have helped shift the focus of many Americans away from dropping pounds and toward improving the quality of their eating habits. More than half of Americans said they were trying to eat fewer artificial ingredients in 2017, and more than 80% said they read nutrition labels this year, NPD Group found.

But a post-dieting society doesn't necessarily mean a healthy one. A record 39.8% of American adults are obese, according to the latest data, yet fewer of them are trying to lose weight now compared with 30 years ago, found a recent study in *JAMA*. Similar trends are true of teens.

As obesity grows more common, it becomes normal to be overweight, which may cause people to lose motivation to slim down, says Jian Zhang, a co-author of the *JAMA* study and an associate professor of public health at Georgia Southern University. That's concerning, he says, since excess weight is a risk factor for heart disease, Type 2 diabetes, cancer and more.

Still, about half of Americans say they are trying to lose weight by changing how they eat or exercise. Dieting is one way to do so, but it's good that the definition of *healthy* has expanded to include physical, emotional, social and environmental well-being, says Torey Armul, a registered dietitian and spokesperson for the Academy of Nutrition and Dietetics. "Health is more than calories in versus calories out," she says. "There's a balance." ◻

GETTY IMAGES

8 Questions

Paulo Coelho The Brazilian novelist, one of the world's best-selling authors, on nostalgia for his hippie days and the forms that love takes

Your new novel, *Hippie*, is based on your experiences exploring South America and Europe in the 1970s. Why write this story now? We have lost the ability to hear what our neighbors have to say. We have polite conversations, but at the end of the day, we don't hear them. There was a moment in time when we were full of hope and we thought that we were going to change the world.

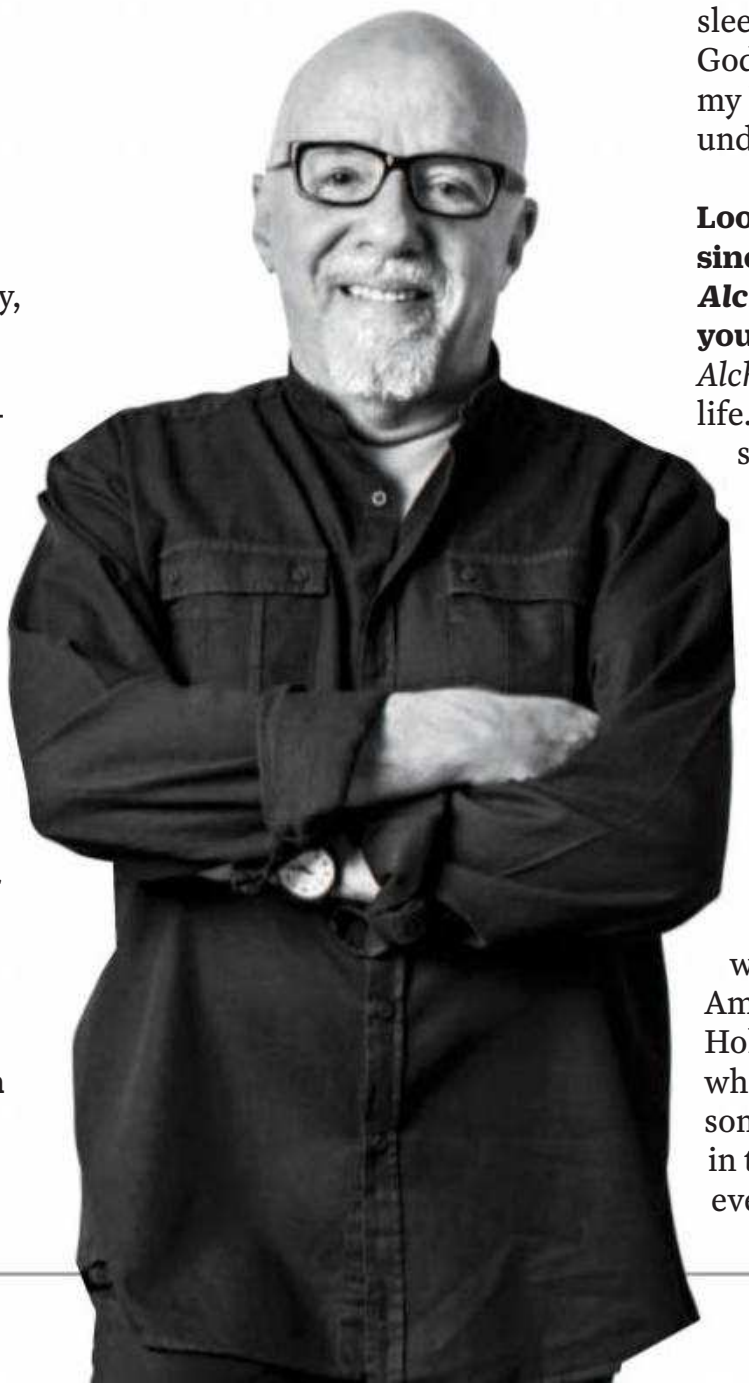
Do you think there was a dark side to hippie life? There were drugs and sex, but I wouldn't call those things the dark side. A lot of money was spent in promoting how drugs were dangerous to the world. They are—but I think they are more dangerous now than they were then.

What did your generation fail to understand about society? My generation understood that once a hippie, always a hippie. Of course, I could not be a hippie today, sitting comfortably here in Geneva. But my values are still the same: simplify your life, eat healthy, respect women. My generation understood the mind and our desire to journey—but then it came time to support ourselves. And it became difficult to broker a peace between the two.

Does President Donald Trump represent the flip side of hippie culture? I have no comment about Trump. Trump is an American problem. I hate when people start talking about my country and try to give opinions about how we manage it. People need to learn how to survive without America being responsible for everything.

What is essential about the story of your main character in *Hippie*, also named Paulo, and Karla, the woman he travels with? We were two people who were very curious about life and all of the possibilities. Karla is the woman who asked me to go with her to Nepal. I went because experience was the most important thing in life—and it still is. Karla and I were able to journey and willing to put ourselves at risk. The book talks about me being in jail and tortured because the military dictatorship did not understand us.

"MY GENERATION UNDERSTOOD THAT ONCE A HIPPIE, ALWAYS A HIPPIE"



The two have a complicated love for each other in the novel. Have you ever been in love? I don't remember not being in love. There are very different types of love. There's Eros, love for another person. There's Philia, love for wisdom. And there is Pragma, which is love that goes beyond everything. Having said that, I have been married for 38 years. I cannot see my life without my wife. Every time I go to sleep, I look at her and she is already sleeping. And I say to myself, "Oh my God, this is the greatest blessing in my life, to have found the person who understands me."

Looking back on the 30 years since your best-known book, *The Alchemist*, was published, how would you say your life has changed? *The Alchemist* changed everything in my life. It was a very slow process that I started when I was 40, so I had time to adjust. I did not become nuts because I went from zero to having a lot of money. What you have to do is learn how to express your soul. And this is what I am still doing. I hope I will write until the day I die.

Is there any chance we'll see a movie adaptation of one of your books soon? No. I never see my books as movies. Of course, I was stupid enough, or it was vanity, that when *The Alchemist* was released in America, it was immediately sold to Hollywood. A book is not improved when it becomes a movie. A book is something that stimulates creativity in the reader. The movie—you have everything already.

—LUCAS WITTMANN

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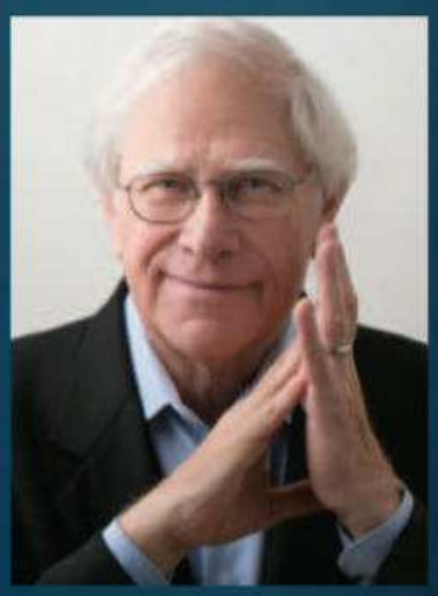

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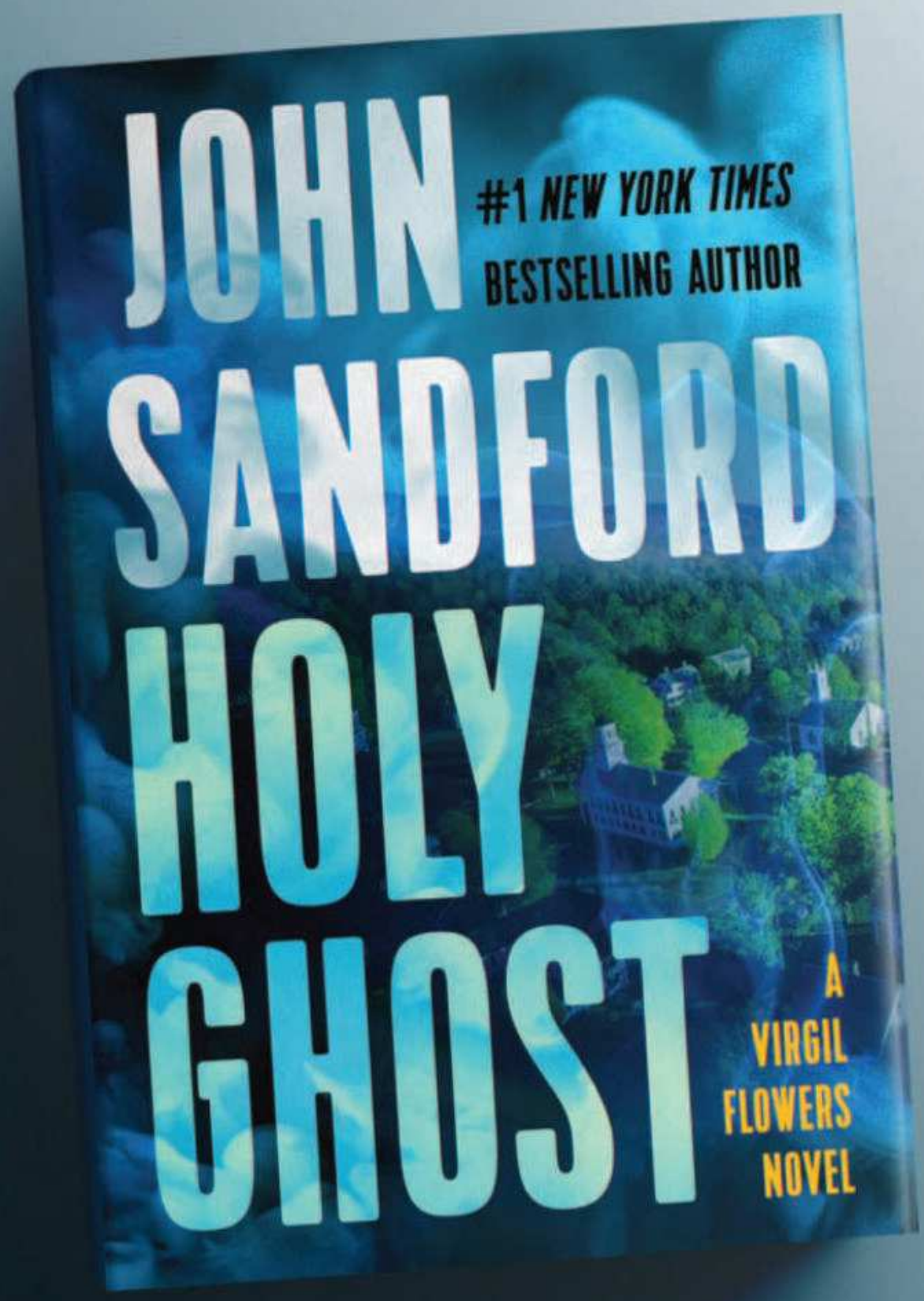

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